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ABSTRACT

This document explores the relationship between application date and early attrition in access colleges. The author notes that students applying to rolling admission colleges can be registered without demonstrating forethought or preparation. Institutions that allow late admission may be doing a disservice to students who have not adequately prepared for the transition to college. This research examined 785 admissions files of first-time college freshmen at an access college. Data were collected regarding the demographics, characteristics, and academic performance of the students. Using Tinto's model of attrition, three hypotheses were tested: (1) students who apply late have different characteristics from students who apply earlier; (2) students who apply late do not perform as well academically as students who apply earlier; and (3) students who apply late are less likely to re-enroll the subsequent term. The combination of age, sex, high school academic performance, and students' enrollment objective proved to be significant with respect to accounting for variance in students' date of application. Data analysis did not confirm the second hypothesis. The third hypothesis was confirmed; groups of students who applied 3 weeks or less before the beginning of the term had higher percentages of attrition than students who applied earlier. (Contains 44 references and 25 tables.) (Author/RC)

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LAST IN, FIRST OUT:

IS THERE A RELATIONSHIP BETWEEN LATE-APPLICATION AND EARLY ATTRITION AMONG FIRST-TIME COLLEGE FRESHMEN?

A dissertation submitted to the

Division of Research and Advanced Studies
of the University of Cincinnati

in partial fulfillment of the requirements for the degree of

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OF

EDUCATION

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of the College of Education

2000

by

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This dissertation is dedicated to my husband, Steven, and children, Philip and Harrison, who endured long hours of neglect as a result of this endeavor. Steven has been my editor and critic, yet always my best friend. Even when I was less than cordial, my family was there to offer support and cater to my every need. It was truly a family effort, whether it was when my children would bring their homework to where I was writing (so we could work together), or when Steven would help me transform my scattered thoughts into cogent ideas. They have always been, and will continue to be, the most important influences in my life.

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Abstract

Attrition is a major problem for universities in general and access (open-admission) colleges in particular. Students applying to a rolling admission, access college can be admitted and registered the day classes begin, without any forethought or preparation. Institutions that allow late admission may be doing a disservice to students who have not adequately prepared for their transition to college. This research examined 785 admissions files of first-time, matriculated college freshmen at an access college. Data were collected regarding the demographics, characteristics, and academic performance of these students. Using Tinto's model of attrition as the framework, these data were analyzed to test the following hypotheses:

1. Students who apply late have different characteristics from students who apply earlier.
2. Students who apply late do not perform as well academically as students who apply earlier.
3. Students who apply late are less likely to reenroll the subsequent term.

The first hypothesis was analyzed using nine independent variables that represented a range of student characteristics (all of which were present in some form in Tinto's model of retention). When analyzed in combination, age, sex, high school academic performance, and students' enrollment objective proved to be the significant variables. This model accounted for 11.1% of the variance in students' date of application. Students' first term grade point average and their percentage of earned hours by attempted hours were the variables used to explore the second hypothesis. Patterns were evident that suggested that students who apply within the last few weeks of the term do

not complete as many courses nor have as high a GPA as students who applied earlier. Despite that, neither variable proved to be statistically significant in relation to the date of application. The third hypothesis was confirmed. Groups of students who applied three weeks or less before the beginning of the term had higher percentages of attrition than students who applied earlier. According to this research, late applicants do exhibit different characteristics from students who apply earlier. These findings corroborate the high-risk profile for attrition in the professional and research literature.

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES.....4

CHAPTER ONE: PROBLEM.....6

Research Questions.....7

The Problem of Attrition.....8

Theories Relating to Retention and Student Success.....11

Remedies for Attrition.....14

CHAPTER TWO: METHODOLOGY.....20

Introduction.....20

Hypothesis One.....20

Hypothesis Two.....20

Hypothesis Three.....21

Design.....21

Population and Sample.....24

Selection Criteria.....24

Description of the Sample.....25

Distribution.....27

Statistical Procedures.....28

CHAPTER THREE: RESULTS.....31

Hypothesis One.....31

Variables.....31

Demographic Data.....32

Sex.....32

GED or Diploma....34
Race....37
Age....40
Analysis of Demographic Variables....46
Academic Ability....46
High School Rank by High School Class Size....46
English Placement....48
Math Placement....51
Analysis of the Academic Ability Variables....57
Goals....57
Degree Objective....57
Enrollment Objective....61
Analysis of Student Goals....62
Most Influential Variables in the Model....62
Hypothesis Two....65
Variables....65
Hypothesis Three....71
Variables....71
Description of Late Applicants....72
Summary....78
CHAPTER FOUR: DISCUSSION....82
High Risk Attrition Profile....82
Implications....84

Reasons for Late Application.....86

Financial Implications.....89

Further Research.....90

Conclusion.....91

REFERENCES.....94

LIST OF FIGURES AND TABLES

Table 1: Variable Definitions.....22

Figure 1: Student Characteristics and Academic Success as it Relates to Date of Application.....33

Table 2: Sex by Days Applied Before the Beginning of the Term—Crosstabulation by Row.....35

Table 3: Sex by Days Applied Before the Beginning of the Term—Crosstabulation by Column.....36

Table 4: GED or Diploma by Days Applied Before the Beginning of the Term—Crosstabulation by Row.....38

Table 5: GED or Diploma by Days Applied Before the Beginning of the Term—Crosstabulation by Column.....39

Table 6: Race by Days Applied Before the Beginning of the Term—Crosstabulation by Row.....41

Table 7: Race by Days Applied Before the Beginning of the Term—Crosstabulation by Column.....42

Table 8: Age by Days Applied Before the Beginning of the Term—Crosstabulation by Row.....43

Table 9: Age by Days Applied Before the Beginning of the Term—Crosstabulation by Column.....45

Table 10: Rank by Size and Days Applied Before the Beginning of the Term—Crosstabulation by Row Percentages.....49

Table 11: Rank by Size and Days Applied Before the Beginning of the Term—Crosstabulation by Column Percentages.....50

Table 12: English Placement by Days Applied Before the Beginning of the Term—Crosstabulation by Row.....52

Table 13: English Placement by Days Applied Before the Beginning of the Term—Crosstabulation by Column.....53

Table 14: Math Placement by Days Applied Before the Beginning of the Term—Crosstabulation by Row.....55

Table 15: Math Placement by Days Applied Before the Beginning of the Term—Crosstabulation by Column.....56

Table 16: Degree Objective by Days Applied Before the Beginning of the Term—Crosstabulation by Row.....59

Table 17: Degree Objective by Days Applied Before the Beginning of the Term—Crosstabulation by Column.....60

Table 18: Enrollment Objective by Days Applied Before the Beginning of the Term—Crosstabulation by Row.....63

Table 19: Enrollment Objective by Days Applied Before the Beginning of the Term—Crosstabulation by Column.....64

Table 20: Earned by Attempted Hours and Days Applied Before the Beginning of the Term—Crosstabulation.....67

Table 21: Earned by Attempted Hours and Days Applied Before the Beginning of the Term—Row Crosstabulation.....68

Table 22: First Term GPA by Days Applied Before the Beginning of the Term—Crosstabulation by Column.....69

Table 23: Subsequent Enrollment by Days Applied Before the Beginning of the Term—Crosstabulation by Row.....73

Table 24: Subsequent Enrollment by Days Applied Before the Beginning of the Term—Crosstabulation by Column.....74

Table 25: Summary of Characteristics Based on Date of Application.....80

CHAPTER ONE

PROBLEM

Attrition is a major problem for universities in general, and access (open-admission) colleges in particular. Access colleges enroll more than one-third of all the nation's students (Glover & Murrell, 1998). Access colleges--by virtue of their mission to serve any student with a high school diploma (or G.E.D.)--admit a larger percentage of part-time students, non-traditional students, students in need of remediation, and other at-risk students, than colleges with more selective admission policies (Farabaugh-Dorkins, 1991; Grimes & David, 1999; Hsiao, 1992; Hoyt, 1999; McCusker, 1999; Pulliams, 1990). In general, these students may be less prepared for college and at greater risk for failure. If they are unable to survive the transition to college, there are financial losses and losses of human potential (Beal & Pascarella, 1982; Cohen & Brawer, 1996; Stapleford & Ray, 1996).

Students applying to a rolling admission, access college can be admitted and registered the day classes begin without any forethought or preparation. Institutions that allow late admission may be doing a disservice to students who have not adequately prepared for college life. Vincent Tinto's model of attrition recognizes that "pre-entry attributes" and the student's "goals and commitments" are precursors to the student's transition to the college environment. Students who are not prepared for the transition to college may begin a process leading to attrition even before the first day of class (Tinto, 1987).

This research was designed to explore attrition as it relates to late applicants. Attrition research is abundant, but published research about late applicants in relation to

attrition is virtually non-existent. This study applies the current models of attrition to a very specific problem of access colleges—late applicants. Community colleges, and universities that have access colleges, must not make admissions policy in the absence of empirical data. We must understand how admissions policy affects the persistence and success of students. To operate without this knowledge is contrary to our mission to serve students in a way that optimizes their learning experience. This research begins that process of understanding the characteristics of late applicants and the impact of late application on persistence. It is an important topic that has not been addressed within the current body of professional and research literature.

Research Questions

This research project explored the demographics and characteristics of first-time, matriculated college freshmen at an access college based on their date of admission. The admissions files of these students were examined to determine what, if any, student characteristics are related to late admission and early attrition. Specifically, three hypotheses were tested:

1. Students who apply late have different characteristics from students who apply earlier.
2. Students who apply late do not perform as well academically as students who apply earlier.
3. Students who apply late are less likely to reenroll the subsequent term.

With this knowledge, recommendations can be made regarding admissions policies at access institutions to better serve students. The research could also serve as the basis to begin a dialogue in the admissions community about late admissions policies.

The Problem of Attrition

Most retention studies have found that students who become attrition statistics have common characteristics. Their demographics indicate that they are older than traditional students, attend school part-time, are employed full-time, and are in need of remedial courses (Hoyt, 1999; McCusker, 1999; Tinto, 1987; Windham, 1994).

Though this is the most common description of the high-risk student in the literature, there have been other studies that contradict these findings. In one such study of students randomly selected from both two-year colleges and four-year colleges, it was found that successful students were the older, not the younger students. This research characterized successful students as having higher levels of self-efficacy as learners, an internal locus of control (degree to which they themselves felt they had control over the outcome of situations), and a high degree of motivation. The successful students in this study also reported having positive educational experiences in the past (Cubeta, Tavers, & Sheckley, 1999).

This study (Cubeta, Tavers, & Sheckley, 1999) is markedly different with respect to the findings on age, but is consistent with other studies that emphasized personal motivation, effort, and internal locus of control as being relevant factors for retention (Kanoy, Wester, & Latta, 1989). The theories about the effect of age on attrition may be inconsistent in the literature because much of the seminal retention research done in the past has been focused on traditional baccalaureate colleges. As more research is conducted at community colleges, we may begin to see different trends emerging based on different types of institutions being researched.

The characteristics that are found in students who are not retained are also the

characteristics of non-traditional students, academically "at-risk" students, and the general population attending community colleges. In addition to the qualities already discussed, the community college student has also been found to have less ambitious degree goals, lower high school grades, fewer financial resources, more family responsibilities, little interaction with fellow students outside of the classroom, and less involvement in campus activities (Hsiao, 1992; Mohammadi, 1994).

The traditional student in a two-year college is non-traditional by virtue of his or her age or life situation. Even the younger students enrolled in a two-year or community college often have obligations that preclude them from devoting as much time and effort to their studies as their traditional counterparts. In one study of students who did not persist, 74% were enrolled part-time and 43% worked full-time (Seppanen, 1995). These students may be single parents, or self-supporting. They do not have the luxury of being immersed--intellectually, emotionally, or physically--in the academic environment (Hsiao, 1992).

This trend has been fueled by the changing demographics in the United States. The average age of student has been increasing dramatically over time. In the decade between 1980 and 1990, the population of students over 25 increased by 35%, compared with only a 3% increase for students under 25 (NCES, 1997). With the numbers of non-traditional students increasing, the attrition problem for non-traditional students has become even more apparent (Bean & Metzner, 1985). The attrition rate for older freshmen is higher than for their traditional-age counterpart, with about 40-50% dropping out during their first year of college (Farabaugh-Dorkins, 1991).

We must address the special needs of access college students and try to help them

accomplish their academic goals. To allow them to fail is costly in terms of human potential and real dollars. Student attrition carries a high price. Colleges waste hundreds of thousands, to millions of dollars, each year as a result of attrition (Jones, 1986). Public institutions of higher education are being held accountable for their rates of attrition. With state funding "inextricably related" to the number of students at the institution, and the rate of reimbursement being tied to higher division courses, retention becomes essential for the viability of individual academic departments and the college as a whole (Gardner, 1998). In some cases, states are mandating certain levels of retention as a condition for receiving special state funds (Burke & Serban, 1998; Gaither, 1995).

Little research has been conducted on students who are late applicants, but in one study of 6,278 late registrants (registering during the first 10 days of class), Belcher found that these students were more likely to be part-time, older students. Students who registered late indicated that they just decided to attend (26%), they had just arrived in town (17.4%), or had just procrastinated (15.8%) (Belcher & Patterson, 1990).

Given that the late registrants were more likely to be part-time, older, and less motivated to register early, it is very likely that this group may also be more vulnerable to the factors that result in attrition. Researchers of at-risk students in community colleges, John E. and Suanne D. Roueche, recommend that community colleges abolish late registration. In their studies of community colleges, these researchers found that "retention and student performance significantly improve once the policy (late registration) is abolished" (Roueche & Roueche, 1993). They stated that the colleges they have studied discovered that students who register late are likely to withdraw or fail.

The Roueches were specifically addressing the problem of students arriving late

to the classroom. This dissertation, in contrast to the Roueches research, will investigate the relationship between the date of admission and early attrition. Even though research is lacking in the area of the effects of late admission on attrition, literature about theories of student retention are abundant.

Theories Relating to Retention and Student Success

To remedy the problem, we must first understand the causes of attrition. The literature suggests a number of different theories related to student persistence and success in college. The theories range from psychosocial and cognitive theories rooted in the individual psyche to theories that offer societal and environmental factors as the basis for the problem. Along the continuum are theories that combine causal factors from each of these schools.

Research cites non-academic reasons for attrition in community colleges. Jones (1986) found that students are four times more likely to leave college for non-academic, rather than academic reasons. The complex nature of attrition would suggest that a number of different variables may be involved, but the answer is not to be found in asking students who have already dropped out (Jones, 1986; Lillibridge, 1998). Some researchers have questioned the ability of students to accurately analyze their reasons for leaving school. The complex nature of the decision may hinder an accurate rendition of the reasons for dropping out. The students may also feel a need to protect self-image by claiming a "socially acceptable" reason for what they may perceive as failure (Kheim, 1980). Most often superficial reasons are cited, such as financial difficulties, conflict in scheduling, or the generic reason--personal problems. These reasons may be more illustrative of symptoms of the problem rather than actual causes for dropping out. It

would be advantageous and important to conduct research when students are currently in school and experiencing the problems that may eventually lead them to dropping out. Research concludes that the decision to leave college is most likely made within the first six weeks of the first term (Tinto, 1987; Upcraft, 1996).

Psychosocial theories and theories of cognition can help explain some of the reasons that students may not succeed in school. According to these theories, humans must pass through developmental stages or tasks to reach maturity. The psychosocial theorists would claim that psychological variables could influence academic performance by affecting self-concept, self-efficacy, and personal identity. Students who have not developed a strong adult identity will not have the skills to successfully navigate within academic environment (Kaisner, 1992). Though these theories may be relevant for the study of the causes of attrition, from a programmatic perspective, colleges probably cannot readily address these problems. For this reason, these theories will not be examined further. It is "unnecessary attrition" that should be the focus of the community college (Jones, 1986).

Many theorists have examined attrition as a function of both personal and environmental factors. These theorists have developed models to help to explain the process of attrition. In these models, the college environment is viewed as having a significant influence on student's persistence. Tinto's model of attrition briefly addresses "pre-entry attributes" as the beginning of the attrition process. He defines these attributes as family background, skills and abilities, and prior schooling. These attributes feed into students' goals and commitments. The goals and commitments include students' intentions and their commitment to institutions. The rest of the model is composed of

institutional experiences, integration, a second level of goals and commitments, and finally, the outcome or departure decision (Tinto, 1987). Other theorists have referred to student characteristics as noncognitive variables of persistence. Students' academic self-concept, expectations of achievement, and goals have been determined to be significant predictors of college success (House, 1996).

Of the pre-entry attributes, Tinto has identified intention and commitment as the most important factors for attrition. Many times students leave not because of failure, but as a result of their cost-benefit analysis; they are not receiving the desired return for their educational investment. These students are not committed to expending the necessary effort for the learning process. Within Tinto's framework, two-year college students, in general, do not have the same level of degree aspirations, and therefore commitment, as their four-year counterparts. Research has shown that students with higher goals are more likely to persist. Students in the community college setting often do not have well-defined goals and so are more at risk for attrition (Tinto, 1987).

Adjustment, difficulty, incongruence, and isolation, account for the personal experiences that affect students decision to persist or leave college (Kenny & Stryker, 1996; Tinto, 1987). These experiences are direct effects of what transpires after entry, but are "colored" by students' characteristic and skills (Tinto, 1987). Programs at the community college in the areas of advising, tutoring, mentoring, faculty involvement, and student activities might positively alter all of these personal experiences.

Bean and Metzner developed a model of attrition specifically applied to non-traditional students. Their model, though similar to Tinto's, takes into account the research findings that the attrition of non-traditional students is affected more by

environmental factors (outside of the academic environment) than by integration into the academic environment. Environmental factors include finances, hours of employment, outside encouragement, family responsibilities, and opportunity to transfer. Bean and Metzner's model labels Tinto's "pre-entry attributes" as "background and defining variables." They include age, enrollment status, residence, educational goals, high school performance, ethnicity, and gender in this section. The "background variables" follow a path into the other components of the model, including "academic variables," "environmental variables," and the resulting outcomes. The model differentiates between "academic outcomes" or grade point average, and the "psychological outcomes" of utility, satisfaction, goal commitment, and stress. The model culminates in an intent to leave and the eventual behavior of dropping out (Bean & Metzner, 1985).

An important feature of the Bean and Metzner model is that environmental support can compensate for poor academic support. The converse, however, is not true. In addition to this relationship, Bean and Metzner also theorize that "psychological outcomes" are of greater significance to the non-traditional student than "academic outcomes." This implies that even if students perform well academically, unless they perceive the worth of the endeavor, they will not persist (Bean & Metzner, 1985). Bean and Metzner's model suggests the importance of services that address environmental factors, such as on-site daycare centers, financial aid services, and career counseling (Farabaugh-Dorkins, 1991).

Remedies for Attrition

As community colleges attempt to recruit and retain students from diverse populations, they must develop programs that will promote support networks as well as

programs that help integrate the student both academically and socially into the college environment (Kenny & Stryker, 1996). Tinto states that a student's academic career can be divided up into "critical periods" when the college can have an impact on student persistence. He states that these periods occur prior to entry, during the time of application and orientation, and in the first term of enrollment. In addition to these key times, if the student is not meeting the academic demands of the institution or has not been integrated into the college environment, then these, too, become critical periods (Tinto, 1987). The intake process is therefore critical to persistence, as are student support services.

Social support has been shown to be effective in helping students make the transition to college—especially for students are who are under high levels of stress (Pratt, Bowers, Terzian, Hunsberger, Mackey, Thomas, Pancer, Ostaniewicz, Alisat, & Rog, 2000). The first year of college is a period of considerable adjustment, but the first few months are even more critical for setting the stage for academic and social integration. Less than 25% of student departures are because of academic dismissal; the rest leave because they have not been integrated into the institution and have experienced incongruence and/or isolation (Tinto, 1987). Incongruence is symptomatic of students who do not feel they fit into the social or academic framework of the university, whereas isolation is a result of students who have not had sufficient social and academic interactions to develop a sense of connection to the college (Tinto, 1987).

Regardless of what critical period is targeted, or what the specific problem the student is experiencing, students must be approached holistically—addressing their student learning and personal developmental needs (Grimes & David, 1999). Gardner

(1998) would rather that institutions regard retention as a "freshman year problem" since attrition most often takes place during the first terms of enrollment. He further describes the problem as a "learning, success, satisfaction" problem—"If first-year students aren't learning, they won't be satisfied, they won't be successful, and they won't be retained" (Gardner, 1998a). Students who perceive the campus community as a challenging, learning, and supportive environment are much more likely to persist (Glover & Murrell, 1998; Stapleford & Ray, 1996).

Gardner (1998b) highlights many areas where institutions fall short of providing the necessary environment for student retention and success. He suggests that college campuses do not place enough emphasis on the freshmen year from the perspective of meeting students' social, developmental, and academic needs.

In most institutions, freshmen courses are large classes relegated to adjunct faculty or the faculty with the lowest seniority. The students least-prepared academically are five times more likely to drop out of school than the students who are well prepared; yet in many cases, the least-prepared students are not provided with the most competent instructors (Stapleford & Ray, 1996).

A majority of the freshmen survey courses are superficial and void of critical thinking. These courses do not emphasize writing, speaking, and active learning but rather rely on rote memorization (Gardner 1998b). For the adult student at the community college, this type of instruction is diametrically opposed to the pedagogy that has been found to be most beneficial and rewarding for them (Hsiao, 1992).

Gardner laments that the curriculum and co-curriculum are viewed as distinct areas with little cooperation between the divisions. Support services are not integrated

into the academic environment—resources are not discussed within the classroom, and academic and social skills that are necessary for retention are not a part of the curriculum (Gardner 1998b).

The tendency to undervalue the freshmen class is exhibited by the lack of time, effort, and importance assigned to testing, orientation, advising, and faculty interaction with students (in the classroom, outside of the classroom, formal and informal) (Gardner, 1998b). Counselors should be integral to the intake process. Students who receive effective preregistration counseling (not perfunctory) are less likely to withdraw and make schedule changes and are more satisfied with their college experience (Pulliams, 1990).

Qualified college counselors should go into the community and work with prospective college students as part of the admissions process. They should provide assistance with career choices, academic major, time management, and lifeskills that will help students make a successful transition to college (especially those students who are first-generation college students or in other high-risk categories) (Hsiao, 1992).

Outreach counseling and bridge programs should also be used for early identification of high-risk students. Identifying high-risk students at an early stage of the admissions process allows for services and programs to be in place immediately upon students' matriculation. Programs such as these that encompass a high degree of early assessment, support, and monitoring have been found to be very successful with high-risk populations (Hsiao, 1992; Pascarella, Whitt, Nora, Edison, Hagendorn, & Terenzini, 1996). High-risk students who experience success, early and often, as a result of their efforts are more likely to persist (Kanoy, Wester, & Latta, 1989).

Finally, Gardner indicates that the freshmen year does not provide the rituals and common experiences that help new students integrate into the educational environment (Gardner 1998b). From an academic standpoint, freshmen are second class citizens.

Even though Gardner's criticisms of universities have some merit when applied to community colleges, some of the shortfalls outlined are less pronounced in the institutions where teaching is emphasized instead of research. It remains, that many of the points Gardner makes are applicable, to some degree, to the community college setting. If institutions were to confront seriously all of these freshmen issues, retention would undoubtedly improve. The services proposed are labor-intensive and costly, but necessary—particularly if community colleges are serious about their mission of recruitment and retaining high-risk students (Stapleford & Ray, 1996).

Though there is general agreement about the characteristics of attrition, there is little agreement about what should be done (Jones, 1986). According to Horton (1980), "we must develop a total integrated approach--an approach that can coalesce the fragments of researched knowledge into systematic program implementation." It is important that we continue to search for programs that are effective and maximize the impact of limited resources.

Though research has lent understanding to certain facets of the problem of attrition, there is still much to be learned. Colleges and universities must employ multiple strategies—both qualitative and quantitative—to determine the nature of the problem at their specific institution and in the evaluation of the effectiveness of the remedies put in place. "Retention cannot be reduced to pure numbers when educational improvement is the aim" (Kinnick & Ricks, 1993). Students must be involved in this discussion if we are

to fully understand all of the implications of the problem and become truly student-centered (Kinnick, & Ricks, 1993).

Colleges and Universities must begin to work together, compare data, and benefit from the synergy of their resources to combat this problem. It is hoped that this study will aid in that discussion. It has been designed to examine the topic of late admission and how it may affect early attrition. With this knowledge, we may enhance our ability to develop admissions policies that improve the likelihood of student success.

CHAPTER TWO

METHODOLOGY

Introduction

This study sought to understand the characteristics of first-time college freshmen based on their date of application, the relationship between that date and students' success their first quarter of college, and finally, the likelihood of students re-enrolling their subsequent term based on their date of application. This chapter describes the methods used to collect and analyze the data.

Initially, measures of central tendency and frequencies were used to describe the research population. After the initial descriptive analysis, parametric and non-parametric statistical methods were applied to the data to discern differences and relationships among students. This study was guided by three research hypotheses.

Hypothesis One

Students who apply late have different characteristics from students who apply earlier to college. Specifically, I sought to understand if students differ in their date of application based on their demographic characteristics (age, race, and sex), their goals (degree objective and enrollment objective), and their academic abilities (math placement test score, English placement test score, and high school G.P.A and rank).

Hypothesis Two

Students who apply late do not perform as well academically as those students who apply earlier. This research explored the relationship between students' date of application with students' first quarter grade point average and their percentage of earned hours. Is the date of application a predictor of academic success the first quarter?

Hypothesis Three

Students who apply late are less likely to reenroll the following term than students who apply earlier. This is an important question for admissions policy. If students who enroll late do not perform as well, should we continue to admit them and compromise their educational success?

In both Hypothesis One and Hypothesis Two, the term "apply late" is used. In the analysis, several methods were used in an attempt to discern the differences in students based on the number of weeks before the quarter began that they applied to the University. Even though "apply late" may be an arbitrary term, the effort was made to determine if there is a time period beyond which student characteristics and achievements change based on their week of application.

Design

This was a longitudinal, post hoc study of closed student admissions files at the college. The data were derived from documents within the student's file and the University's student databases. The student's admissions application, confirmation of admission form, high school transcript, ASSET Placement Test scores, and the University's history databases were used to compile the data.

Each file in the sample was reviewed for the following key data elements: application date, quarter of admission, age, sex, race, GED or diploma, enrollment status, high school G.P.A., ASSET Placement test scores, major, degree objective, preparatory courses taken first quarter, high school rank, high school senior class size, first quarter credit hours attempted, first quarter credit hours earned, and first quarter college G.P.A., and the number of consecutive quarters (see Table 1 for variable definitions). The data

Table 1

Variable Definitions

- Days Applied Before Term: The number of days between the submission of an admission application from a first-time college freshman and the first day of the term.

  Date of "submission of admission application" – "Received Date" stamped by the Admission Office on the admissions application
  "First day of term" – Official University start date for the first quarter the student attended
  First-time college freshman – a student who has never attended any post-secondary institution either as a matriculated or non-matriculated student

- Age: Age of student as of the year of the admission application—computed using birth date on admissions application

- Sex: Female or Male as reported by the student on the admissions application

- Race: White/Non-Hispanic, Asian/Pacific Islander, Native American, Hispanic/Latino, African American, Other, as reported by the student on the admissions application

- GED or Diploma: Whether the student obtained a GED or high school diploma as indicated in the admissions file

- Enrollment Status: Anticipated enrollment status as reported on the admissions application—full-time or part-time

- High School GPA: Cumulative GPA as recorded on high school transcript

- Math Placement: Math placement at the College based on student's score on the math portion of the ASSET Placement Test (Standardized Placement Test developed by ACT)

- English Placement: English placement at the College based on student's score on the English portion of the ASSET Placement Test and a writing sample evaluated by the College English Department

- Major Code: Student's intended major as reported on the admissions application

- Degree Objective: Student's self-reported degree objective as indicated on admissions application—Certificate, Associate's Degree, or Bachelor's Degree

- Preparatory Math: Whether or not the student was enrolled in Preparatory Math his/her first quarter as recorded in the history student database

- Preparatory English: Whether or not the student was enrolled in Preparatory English his/her first quarter as recorded in the history student database

- High School Rank: High school rank as reported on the student's high school transcript

- High School Senior Class Size: High school senior class size as reported on the high school transcript

- High School Rank by High School Class Size: the percentile score by dividing the high school rank by the high school class size

- First Quarter College Credit Hours Attempted: Number of quarter hours the student attempted the first quarter as recorded in the University's history student database

- First Quarter College Credit Hours Earned: Number of quarter hours the student earned ("D" or better) in the first quarter as recorded in the University's history student database

- First Quarter College GPA: College GPA after at the end of the first quarter as recorded in the University's history student database

- Number of Consecutive Quarters: Number of consecutive quarters attended starting with the initial quarter of admission (spring to fall was considered consecutive quarters) as recorded in the University's history student database

- Enrolled Subsequent Quarter: Whether or not the student enrolled the subsequent term after initial enrollment (spring to fall was considered subsequent quarters).

were compiled in a database and then exported to a statistical computer package for analysis.

Population and Sample

The research was conducted at a two-year regional campus of a large state university in a metropolitan area of approximately 1.9 million. The college offered certificates as well as technical and transfer Associate Degree programs. The college's 3,600 commuter students had a mean age of 28; 30% were male and 70% were female. The college racial make-up was approximately 82% Caucasians, 11% African Americans, and 6% other minorities. A majority of the students were part-time (approximately 65%). The college was located in a suburban neighborhood twelve miles from the main campus.

The college had an open admissions policy. Any new freshman applicant with a high school diploma or G.E.D. was eligible for admission. There were no admissions deadlines. Students were admitted on a rolling admission basis throughout the term, and throughout the year. Students did not have to be formally admitted before taking courses. An admissions file was created once an admissions application was received.

The admissions files for students who were not registered for classes for one quarter or more were placed into the college's closed files. After five consecutive years without enrollment, the files were shredded. For this research, a sample of 2,706 files was drawn from the 6,766 files of students at the college who ceased to be enrolled between 1997 and 1999.

Selection criteria. *Research Randomizer* (an internet site developed by Wesleyan University) was used to generate a list of random numbers to determine which files from

the closed file archives of the college would be selected for the sample. The number of files in each file drawer was counted to determine the range for the random numbers. A list of randomly selected numbers was generated for each drawer. The resulting sample represented 40% of the files in the drawer. The files were then pulled and analyzed based on their numerical order in the file drawer.

Not all files selected for the sample were valid. Only those files of students who were new to post-secondary education were considered acceptable for the study. If a file was selected of a transfer student, or of a student who had attended any post-secondary institution (as a matriculated or non-matriculated student), the file was not considered valid. Valid files were coded as such during the review process. Of the 2,706 files selected for the sample, 785 (29%) of the cases were deemed valid and were therefore included in the analysis.

Description of the sample. Of the valid cases, 66% were female, 34% were male, and 4 cases had missing data for sex. Age ranged from 17 to 71, with the mean age of 22, a median age of 19, a mode age of 18, and a standard deviation of 6.25. Of the 719 students who completed racial information on their admission forms, 84% were Caucasian, 10% African American, 2% Native American, and less than 2% each for Asian, Hispanic, and those students listing themselves as "other."

When asked about their secondary education, 91% students indicated that they had a high school diploma and 9% stated they had completed a GED (N=784). Of those who completed high school, their cumulative high school GPA ranged from .6 to 4.19 on a 4.0 scale (with extra GPA weighting for honors courses). The mean high school GPA was 2.38, the median was 2.34, the mode was 2.9, with a standard deviation of .60

(N=626).

Students applied to the college as many as 848 days before the quarter began (students would sometimes apply to the college, and then delay their start date) to 288 days after the beginning of the quarter. The mean days applied before the quarter was 127, the median was 91, with a standard deviation was 125 days. After controlling for the extreme scores (the one score of 288 days after the quarter began and the 27 students who applied more than one year before they registered for their first quarter), the mean number of days applied before the quarter was 113, the median was 88 days, with a standard deviation was 95.

The students in the study tested into varying levels of math and English. Of the 714 reported math placement scores, 23% tested into preparatory math, 49% tested into Introduction to Algebra, 2% tested into Introduction to Algebra II, and 14% tested into Intermediate Algebra, for a total of 89% testing into some level of developmental math. Only 11% tested into college level math courses with 9% placing into College Algebra, 2% placing into Finite Math, and less than 1% placing into Trigonometry/Calculus. Even though 89% tested into developmental math courses, only 17% of those students took preparatory math their first quarter in college.

English Placement scores (N=713) revealed that 1% of the students tested into Preparatory English 1, 6% tested in Preparatory English II, 22% tested into Preparatory English 3, and 71% tested into College Freshmen English. Of the 29% of the students who tested into developmental English courses, 21% actually enrolled in Preparatory English their first quarter in college.

Seven percent of the students in the sample were undeclared majors upon

admission. The greatest number of students declared liberal arts as their major (12%). Business was the second most popular major with the sample of students (11%). The students were almost evenly distributed in their degree goals—49% were enrolled to earn an Associate degree and 51% had indicated a Bachelor's degree as their objective (N=619). Less than 1% of the students declared a certificate as their goal.

Most of the students (76%) had indicated on their admissions application that they wanted to be full-time (N=746). In reality, 40% registered for less than twelve credits their first quarter.

The mean GPA for the first quarter was 2.25, the median was 2.5, mode was 0, with a standard deviation of 1.23 (N=785). Fourteen percent of the students did not earn any credit for their first quarter in college. Thirty-two percent of the students in the sample had less than a 2.0 GPA after their first quarter.

A majority of the students registered for the subsequent quarter after their initial quarter of enrollment. Of the students in the sample, 78% enrolled the next quarter, and 23% ceased to be enrolled for the following quarter (N=785). The mean number of consecutive quarters of enrollment was 4.7 quarters, the median was 3 quarters, and the mode was 1 quarter, with a standard deviation of 3.9.

Distribution. All of the variables, with the exception of High School Rank by High School Size markedly violated the assumption of normal distribution. The frequency distributions for the variables either had a large skewness or kurtosis (in some cases, both) with respect to their standard error. However, because of the large sample, the lack of normal distribution in the variables was not regarded as problematic. Stevens (1990) asserts that with 50 or more observations, even non-normal distributions

approximate normality. The sample of 785 cases should mitigate any effect of non-normal distributions. However, to be conservative, every parametric test was followed by a non-parametric test to assure that the results were consistent.

Statistical Procedures

The data were analyzed using both parametric and non-parametric tests. The first step involved analyzing the demographics of the sample using measures of central tendency—mean, median, mode, and standard deviation. Before this analysis, all data with the exception of Age, Sex, and Race, were recoded to reflect that a higher value was associated with the more advanced, or more desirable, state. For example, a baccalaureate degree was coded a higher number than the associate degree, and a full-time enrollment objective was coded higher than the part-time objective.

In two cases, the data were collapsed into fewer categories than was originally collected because of the lack of responses in a particular category. Race was reduced to three categories (Caucasian, African-American, and other) and Degree Objective was reduced to two categories (Associate's or less, and Bachelor's degree).

High School Rank by High School Class Size proved to be a difficult variable for analysis. One hundred and twenty-two cases were missing high school rank and/or high school size information, 74 of which were students who had earned a GED instead of a high school diploma. Since students with a GED did not have a score for this variable, they were assigned a score that represented the 25% quartile of the sample. The reasoning was that these students were very likely not performing well when they dropped out of school and using the high school rank mean would have over-estimated their ranking. This adjustment was necessary because the group of students with GEDs could not be

ignored since they represented an important population for the access college.

High school rank was not used as the sole indicator for high school achievement because class size varied from a total of 9 students to 809. As high school rank is affected by the number of students competing for that rank, it was calculated as a percentage of high school size.

For the crosstabulation analysis, Age, High School Rank by High School Size, and Days Applied Before Term, were segmented into categories. Age was separated into seven categories, the first group being students who most likely entered directly from High School (17-18 year-olds) and then three groups of traditional college age students separated by two year differences in age (19-20, 20-22, and 23-24 year-olds). After the traditional age categories, the ages were divided into a five year increment, a ten year increment, and everyone else 41 or above (25-30, 31-40, and 41+ years).

High School Rank by High School Class Size variable was divided into quintile segments for Crosstabulation analysis. The first quintile were those students who ranked at the top of their high school class. The last quintile were those students at the bottom of their class.

The second step of the data analysis involved separating the individual questions within the research hypotheses into two categories: (1) the differences between groups of students based on application date and (2) questions based on association—was there a relationship between the date of application, academic success, and the variables that constituted student characteristics?

The questions of difference were analyzed using *t* Tests, crosstabulations, and One-Way ANOVA's. In the cases with ordinal data or where the ANOVA assumptions

were markedly violated, Mann-Whitney and Kruskal-Wallis tests were used for analysis (Morgan & Griego, 1998). The associational questions were analyzed using Spearman (Rho) Correlations. Spearman (Rho) nonparametric test was used instead of Pearson Correlations, because most of the variables were categorical and were not normally distributed (Morgan & Griego, 1998). Tests that involved both types of questions were analyzed using ANCOVA's (Analysis of Covariance).

All tests were conducted at $\alpha = .0125$ because of the number of independent variables involved and the number of tests that were performed. The desired $\alpha = .05$ was divided by the four levels of planned comparisons (student demographics by date of application, hours earned by attempted hours, and first quarter GPA) to give $\alpha = .0125$ (Stevens, 1990). This more conservative approach was taken because of the likelihood of correlations among the variables. Stevens (1990) states that "one route investigators should seriously consider if they suspect that the nature of their study will lead to correlated observations is to test at a more stringent level of significance." After all data were analyzed, findings were processed into generalizations.

CHAPTER THREE

RESULTS

The results of the study are presented in this chapter. The analysis of each hypothesis is discussed along with the specific questions that were investigated in the process of accepting or rejecting the null hypotheses. In this analysis, a description of late applicants was explored, an examination was conducted of how those late applicants perform academically compared to those students who apply earlier, and the patterns of persistence among the different groups were reviewed.

Hypothesis One

Variables

The hypothesis that students who apply late have different characteristics from students who apply earlier was analyzed using nine independent variables that represented a range of student characteristics (all of which were present in some form in Tinto's model of retention) (Tinto, 1987). The nine variables were placed into one of three categories: demographic data, academic ability, or goals.

Demographic data included: age, sex, race, and whether the student had obtained a high school diploma or GED. The variables used to measure the students' academic abilities were high school rank as a percentage of class size, and English and math placement scores. (These scores were obtained from the placement test that the students took at some point before they were enrolled in English or math—usually before their first term of enrollment.) Enrollment Objective and Degree Objective were the variables used to ascertain the students' goals and commitment to college.

These variables were selected for the study because they were identified in the

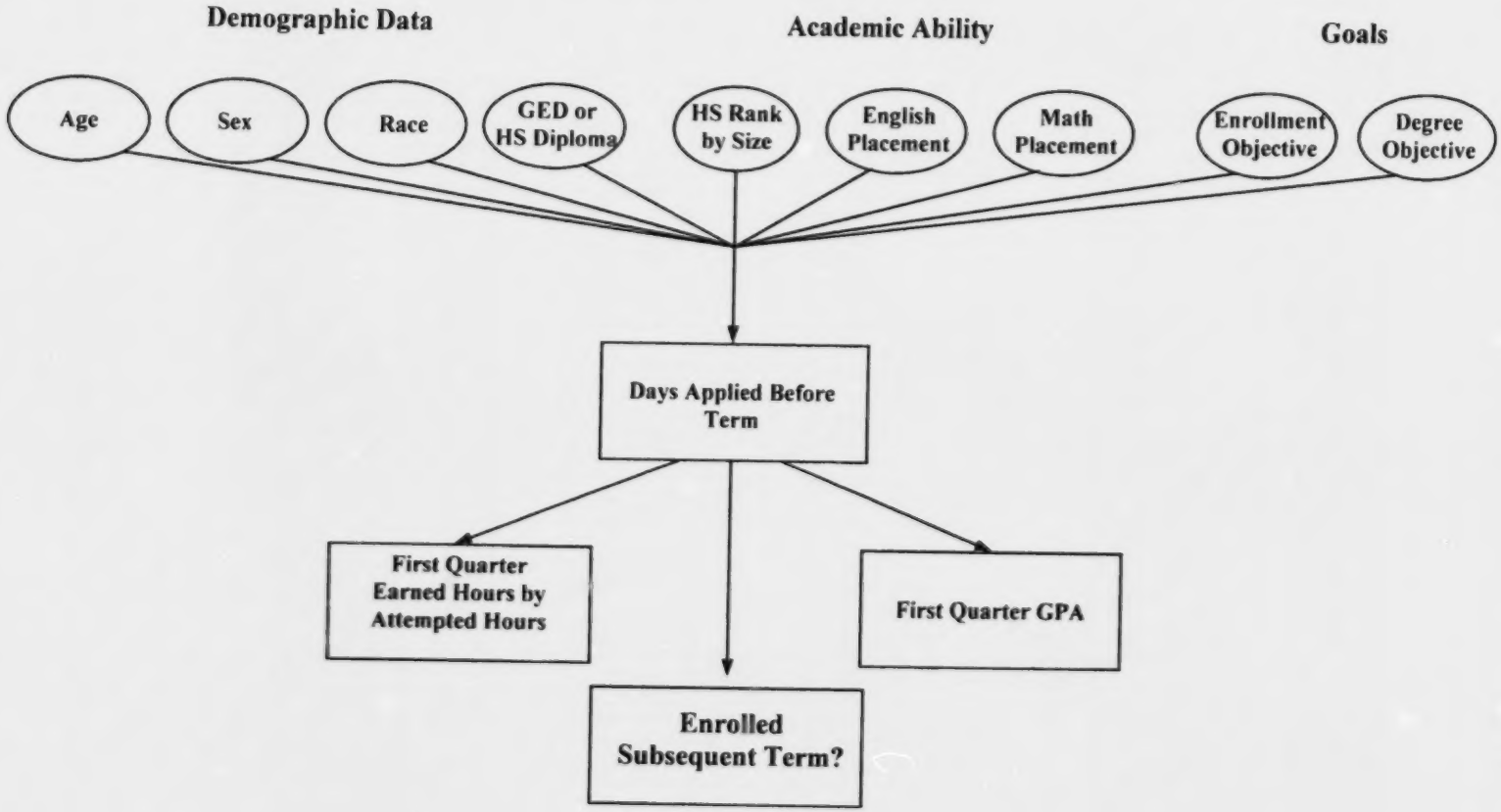
literature as having a significant relationship to attrition. Each of the independent variables was analyzed separately and in conjunction with one another to determine their relationship (if any) to the dependent variable, Days Applied Before Term (see Figure 1).

Demographic Data

Sex. An independent samples *t* test (parametric) and Mann-Whitney test (nonparametric) were used to analyze the differences between the sexes with respect to the number of days that the students applied before the term began. A *t* test was performed for the analysis because the independent variable (Sex) was dichotomous. A Mann-Whitney test was used in conjunction with the *t* test because the distribution of the dependent variable was positively skewed thereby violating one of the underlying assumptions for *t* tests. Mann-Whitney was therefore used to lend credence to, or discredit, the *t* test results. For the *t* test analysis, Levene's Test for Equality of Variances was also used to assure that the variances of the two groups were equal. In this analysis, Levene's test was found to be non-significant so equal variances could be assumed.

The *t* test yielded the information that the number of days that male students applied before the beginning of the quarter did not differ significantly from female students at α=.0125, but would be significant at α=.05 ($t(781)=2.41$, $p=.016$). The Mann-Whitney test, however, indicated that the mean ranks for males was significantly lower than for females, Sig.=.005. The mean number of days before the term began that women applied to the college was 135.31 whereas the mean for men was 112.55. Since the *t* test result is within .0035 of the designated alpha level, and the Mann-Whitney resulted in a significant difference, the implication that women apply before men should not be ignored.

Figure 1
Student Characteristics and Academic Success as it Relates to Date of Application



The crosstabulation analysis supported this finding. As shown in Table 2, women were below the expected count in Days Applied Before Term the last three weeks before the term began and exceeded the expected number for applying three months or more before the term began. Conversely, of the total population of men, more than expected applied to the University the last three weeks before the term began and less than expected applied three months or more before the term began. Of all women, 9.5% applied to the University two weeks or less before school started, whereas 14.4% of the men applied during this same timeframe. Of all women, 35.1% applied 145 or more days before the beginning of the term, whereas only 29.4% of the men applied during that same period. The count for both males and females was as expected for the period one to two months before the term began.

Women outnumber men in the total number of students at the college—66.1% to 33.9% respectively. It is therefore not surprising that of those who applied within the last week of the term beginning were 60.7% female. As discussed previously, even though this is a large percentage, it is less than would be expected given the total number of women applying to the college. Women outnumber men throughout the application process (see Table 3)

GED or Diploma. The second group of comparisons was students who had earned a GED rather than a high school diploma. The same parametric and non-parametric tests used for the independent variable, Sex, were also used for the independent variable, GED or Diploma, and for the same reasons. GED or Diploma is a dichotomous variable and the dependent variable, Days Applied Before Term, was positively skewed thereby indicating the appropriateness of a non-parametric test.

Table 2

Sex by Days Applied Before the Beginning of the Term--Crosstabulation by Row

			Days Applied Before Beginning of Term										Total
			After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
Sex	Female	Count	20	17	12	19	18	89	59	60	41	181	516
		Expected Count	23.8	18.5	15.2	27.1	15.2	89.2	59.5	56.8	39.6	171.1	516
		% within Sex	3.9%	3.3%	2.3%	3.7%	3.5%	17.2%	11.4%	11.6%	7.9%	35.1%	100.0%
	Male	Count	16	11	11	22	5	46	31	26	19	78	265
		Expected Count	12.2	9.5	7.8	13.9	7.8	45.8	30.5	29.2	20.4	87.9	265
		% within Sex	6.0%	4.2%	4.2%	8.3%	1.9%	17.4%	11.7%	9.8%	7.2%	29.4%	100.0%
Total		Count	36	28	23	41	23	135	90	86	60	259	781
		Expected Count	36	28	23	41	23	135	90	86	60	259	781
		% within Sex	4.6%	3.6%	2.9%	5.2%	2.9%	17.3%	11.5%	11.0%	7.7%	33.2%	100.0%

Table 3

Sex by Days Applied Before the Beginning of the Term--Crosstabulation by Column

			Days Applied Before Beginning of Term										Total
			After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
Sex	Female	Count	20	17	12	19	18	89	59	60	41	181	516
		Expected Count	23.8	18.5	15.2	27.1	15.2	89.2	59.5	56.8	39.6	171.1	516
		% within Days Applied Before Term	55.6%	60.7%	52.2%	46.3%	78.3%	65.9%	65.6%	69.8%	68.3%	69.9%	66.1%
	Male	Count	16	11	11	22	5	46	31	26	19	78	265
		Expected Count	12.2	9.5	7.8	13.9	7.8	45.8	30.5	29.2	20.4	87.9	265
		% within Days Applied Before Term	44.4%	39.3%	47.8%	53.7%	21.7%	34.1%	34.4%	30.2%	31.7%	30.1%	33.9%
Total		Count	36	28	23	41	23	135	90	86	60	259	781
		Expected Count	36	28	23	41	23	135	90	86	60	259	781
		% within Days Applied Before Term	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The *t* test revealed that the average number of days that students with a GED applied before the beginning of the term was significantly lower than for students with a high school diploma (t(783)=-2.71, p=.007). The mean for students with a GED was 89.25 and the mean for students with a high school diploma was 131.00. Once again, the Levene's test indicated equal variances and the Mann-Whitney test replicated the findings of the *t* test performed with a p=.000.

The crosstabulation analysis was also revealing for this variable (see Table 4). Of all students who had a GED, a total of 16.7% applied the last week before the term began or after school started. This represented a higher than expected count for those cells. The GED holders were under-represented in the categories of students who applied three months or more before the quarter began. It should be noted that the GED students in general only represented 9.2% of the entire new freshmen class (see Table 5).

Race. One-way Analysis of Variance (parametric) and Kruskal-Wallis tests (nonparametric) were used to analyze the independent variable of race and how it related to the number of days the student applied before the beginning of the term. Race, the independent variable, was reduced to three categories—Caucasian, African American and other. There were not enough cases in the other racial categories to justify maintaining them as distinct groups. As a result of the reduced categories of the independent variable and the interval dependent variable, Analysis of Variance was chosen as the appropriate inferential statistic (ANOVA) (Morgan & Griego, 1998). The Levene Statistic was used to determine if the ANOVA assumption of equal variances was violated—it was (*p*=.00).

Consequently, the Kruskal-Wallis nonparametric test was employed to analyze the data instead of a one-way ANOVA. The Kruskal-Wallis test indicated that there was

Table 4

GED or Diploma by Days Applied Before the Beginning of the Term--Crosstabulation by Row

			Days Applied Before Beginning of Term										Total
			After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
GED or Diploma	GED	Count	8	4	2	8	2	14	13	5	2	14	72
		Expected Count	3.3	2.7	2.2	3.8	2.1	12.4	8.3	7.9	5.5	23.8	72
		% within GED or Diploma	11.1%	5.6%	2.8%	11.1%	2.8%	19.4%	18.1%	6.9%	2.8%	19.4%	100.0%
	HS Diploma	Count	28	25	22	33	21	121	77	81	58	245	711
		Expected Count	32.7	26.3	21.8	37.2	20.9	122.6	81.7	78.1	54.5	235.2	711
		% within GED or Diploma	3.9%	3.5%	3.1%	4.6%	3.0%	17.0%	10.8%	11.4%	8.2%	34.5%	100.0%
Total		Count	36	29	24	41	23	135	90	86	60	259	783
		Expected Count	36	29	24	41	23	135	90	86	60	259	783
		% within GED or Diploma	4.6%	3.7%	3.1%	5.2%	2.9%	17.2%	11.5%	11.0%	7.7%	33.1%	100.0%

Table 5

GED or Diploma by Days Applied Before the Beginning of the Term--Crosstabulation by Column

			Days Applied Before Beginning of Term										Total
			After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
GED or Diploma	GED	Count	8	4	2	8	2	14	13	5	2	14	72
		Expected Count	3.3	2.7	2.2	3.8	2.1	12.4	8.3	7.9	5.5	23.8	72
		% within Days Applied Before Term	22.2%	13.8%	8.3%	19.5%	8.7%	10.4%	14.4%	5.8%	3.3%	5.4%	9.2%
	HS Diploma	Count	28	25	22	33	21	121	77	81	58	245	711
		Expected Count	32.7	26.3	21.8	37.2	20.9	122.6	81.7	78.1	54.5	235.2	711
		% within Days Applied Before Term	77.8%	86.2%	91.7%	80.5%	91.3%	89.6%	85.6%	94.2%	96.7%	94.6%	90.8%
Total		Count	36	29	24	41	23	135	90	86	60	259	783
		Expected Count	36	29	24	41	23	135	90	86	60	259	783
		% within Days Applied Before Term	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

not a significant difference between the races in the date of application (Sig.=.89).

The crosstabulation analysis shows that 11.6% of Caucasians, 8.2% of African Americans, and 5% of other racial groups, applied two weeks or less before the term began. The African American count is higher than expected for the cell "After Classes Began," but lower than expected for the cells that represent students who apply one week and two weeks before the quarter began (see Table 6). Since the other statistical tests were not significant, the differences in the cell counts should not be considered a significant finding either. African American students represented 10.2% of the entire new freshmen class (see Table 7).

Age. Spearman's rho correlation coefficient was used to explore the relationship between age and the date of application. This test was deemed appropriate because the independent variable, Age, was interval data, as was the dependent variable, Days Applied Before Term. A non-parametric test was used because the variables did not exhibit normal distributions. Age and date of application were found to have a significant correlation $r(782) = -.392$, $p<.001$. As age increased, the number of days the student applied before the quarter decreased. Older students were therefore applying later than younger students.

The analysis was continued using crosstabulations (see Table 8). As previously described, for this analysis Days Applied Before Term and Age were categorized into meaningful segments. The results illustrate that the 17-18 year-old age group is underrepresented in seven contiguous categories—starting with application received approximately three months before the term started to application receipt after classes began. Seventy-three percent of the 17-18 year-old age group applied more than three

Table 6

Race by Days Applied Before the Beginning of the Term--Crosstabulation by Row

			Days Applied Before Beginning of Term										Total
			After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
Race	Caucasian	Count	24	26	20	26	18	112	67	71	46	196	606
		Expected Count	25.3	22.8	17.7	32	16	109.6	71.6	69.1	44.7	197.2	606
		% within Race	4.0%	4.3%	3.3%	4.3%	3.0%	18.5%	11.1%	11.7%	7.6%	32.3%	100.0%
	African American	Count	5	1	0	10	1	10	11	5	4	26	73
		Expected Count	3	2.7	2.1	3.9	1.9	13.2	8.6	8.3	5.4	23.8	73
		% within Race	6.8%	1.4%	0.0%	13.7%	1.4%	13.7%	15.1%	6.8%	5.5%	35.6%	100.0%
	Other	Count	1	0	1	2	0	8	7	6	3	12	40
		Expected Count	1.7	1.5	1.2	2.1	1.1	7.2	4.7	4.6	2.9	13	40
		% within Race	2.5%	0.0%	2.5%	5.0%	0.0%	20.0%	17.5%	15.0%	7.5%	30.0%	100.0%
Total		Count	30	27	21	38	19	130	85	82	53	234	719
		Expected Count	30	27	21	38	19	130	85	82	53	234	719
		% within Race	4.2%	3.8%	2.9%	5.3%	2.6%	18.1%	11.8%	11.4%	7.4%	32.5%	100.0%

Table 7

Race by Days Applied Before the Beginning of the Term--Crosstabulation by Column

			Days Applied Before Beginning of Term										Total
			After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
Race	Caucasian	Count	24	26	20	26	18	112	67	71	46	196	606
		Expected Count	25.3	22.8	17.7	32	16	109.6	71.6	69.1	44.7	197.2	606
		% within Days Appl. BeforeTerm	80.0%	96.3%	95.2%	68.4%	94.7%	86.2%	78.8%	86.6%	86.8%	83.8%	84.3%
	African American	Count	5	1	0	10	1	10	11	5	4	26	73
		Expected Count	3	2.7	2.1	3.9	1.9	13.2	8.6	8.3	5.4	23.8	73
		% within Days Appl. BeforeTerm	16.7%	3.7%	0.0%	26.3%	5.3%	7.7%	12.9%	6.1%	7.5%	11.1%	10.2%
	Other	Count	1	0	1	2	0	8	7	6	3	12	40
		Expected Count	1.7	1.5	1.2	2.1	1.1	7.2	4.7	4.6	2.9	13	40
		% within Days Appl. BeforeTerm	3.3%	0.0%	4.8%	5.3%	0.0%	6.2%	8.2%	7.3%	5.7%	5.1%	5.6%
Total		Count	30	27	21	38	19	130	85	82	53	234	719
		Expected Count	30	27	21	38	19	130	85	82	53	234	719
		% within Days Appl. BeforeTerm	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 8
Age by Days Applied Before the Term--Crosstabulation by Row

		Days Applied Before Beginning of Term										Total
		After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
17-18	Count	3	3	6	10		25	18	28	22	139	259
	Expected Count	11.9	9.6	7.9	13.5	7.6	44.6	29.7	28.4	19.8	85.9	259
	% within Age	1.2%	1.2%	2.3%	3.9%	1.9%	9.7%	6.9%	10.8%	8.5%	53.7%	100%
19-20	Count	13	7	8	10	5	44	25	24	13	72	221
	Expected Count	10.1	8.2	6.8	11.6	6.5	38.1	25.4	24.2	16.9	73.3	221
	% within Age	5.9%	3.2%	3.6%	4.5%	2.3%	19.9%	11.3%	10.9%	5.9%	32.6%	100%
21-22	Count	6	5	4	5	3	11	8	9	4	20	75
	Expected Count	3.4	2.8	2.3	3.9	2.2	12.9	8.6	8.2	5.7	24.9	75
	% within Age	8.0%	6.7%	5.3%	6.7%	4.0%	14.7%	10.7%	12.0%	5.3%	26.7%	100%
23-24	Count	2	3	2	2	2	9	8	6	5	5	44
	Expected Count	2	1.6	1.3	2.3	1.3	7.6	5.1	4.8	3.4	14.6	44
	% within Age	4.5%	6.8%	4.5%	4.5%	4.5%	20.5%	18.2%	13.6%	11.4%	11.4%	100%
25-30	Count	3	7	2	10	5	32	15	15	11	12	112
	Expected Count	5.1	4.1	3.4	5.9	3.3	19.3	12.9	12.3	8.6	37.1	112
	% within Age	2.7%	6.3%	1.8%	8.9%	4.5%	28.6%	13.4%	13.4%	9.8%	10.7%	100%
31-40	Count	7	4	2	3	2	10	13	4	3	10	58
	Expected Count	2.7	2.1	1.8	3	1.7	10	6.7	6.4	4.4	19.2	58
	% within Age	12.1%	6.9%	3.4%	5.2%	3.4%	17.2%	22.4%	6.9%	5.2%	17.2%	100%
41+	Count	2	0	0	1	1	4	3	0	2	2	15
	Expected Count	0.7	0.6	0.5	0.8	0.4	2.6	1.7	1.6	1.1	5	15
	% within Age	13.3%	0.0%	0.0%	6.7%	6.7%	26.7%	20.0%	0.0%	13.3%	13.3%	100%
Total	Count	36	29	24	41	23	135	90	86	60	260	784
	Expected Count	36	29	24	41	23	135	90	86	60	260	784
	% within Age	4.6%	3.7%	3.1%	5.2%	2.9%	17.2%	11.5%	11.0%	7.7%	33.2%	100%

months before the beginning of the term. Only 4.7% applied two weeks or less before the quarter began. The 17-18 year-old group comprised 33% of the total number of new freshmen applicants (see Table 9).

The 19-20 year-old age group had a larger than expected number that applied after classes began (5.9%) but otherwise applied at times that came fairly close to what would be predicted based on the sample size. Of this group, 12.7% applied two weeks or less before the beginning of the term. This group comprised 28.2% of the total number of new freshmen applicants.

The 21-22 year-old age group consistently showed a higher than expected count in contiguous cells starting with application four weeks before school started to application submitted after classes began. They also showed a lower than expected count in the categories of applying approximately four months or more before classes began. This group had 20% of its population applying two weeks or less before the term commenced. They comprised 9.6% of the total number of new freshmen applicants.

The last group of traditional age college students were the 23-24 year-olds. This group had a higher than expected count in the categories representing application one to approximately five months before the quarter started. They applied in numbers that would be expected in the last weeks before school began. This group constituted only 5.6% of the total new freshmen population.

The 25-30 year-old age group had higher numbers than expected in the cells representing application three weeks to approximately five months before the quarter began. They represented 14.3% of the new freshmen class.

The 31-40 year-old age group (7.4% of new freshmen class) and the 41+ age

Table 9

Age by Days Applied Before Term Crosstabulation by Column Percentages

		Days Applied Before Beginning of Term										
	% Within	After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	Total
17-18	Count	3	3	6	10	5	25	18	28	22	139	259
	Expected Count	11.9	9.6	7.9	13.5	7.6	44.6	29.7	28.4	19.8	85.9	259
	Days Appl. Before Term	8.3%	10.3%	25.0%	24.4%	21.7%	18.5%	20.0%	32.6%	36.7%	53.5%	33.0%
19-20	Count	13	7	8	10	5	44	25	24	13	72	221
	Expected Count	10.1	8.2	6.8	11.6	6.5	38.1	25.4	24.2	16.9	73.3	221
	Days Appl. Before Term	36.1%	24.1%	33.3%	24.4%	21.7%	32.6%	27.8%	27.9%	21.7%	27.7%	28.2%
21-22	Count	6	5	4	5	3	11	8	9	4	20	75
	Expected Count	3.4	2.8	2.3	3.9	2.2	12.9	8.6	8.2	5.7	24.9	75
	Days Appl. Before Term	16.7%	17.2%	16.7%	12.2%	13.0%	8.1%	8.9%	10.5%	6.7%	7.7%	9.6%
23-24	Count	2	3	2	2	2	9	8	6	5	5	44
	Expected Count	2	1.6	1.3	2.3	1.3	7.6	5.1	4.8	3.4	14.6	44
	Days Appl. Before Term	5.6%	10.3%	8.3%	4.9%	8.7%	6.7%	8.9%	7.0%	8.3%	1.9%	5.6%
25-30	Count	3	7	2	10	5	32	15	15	11	12	112
	Expected Count	5.1	4.1	3.4	5.9	3.3	19.3	12.9	12.3	8.6	37.1	112
	Days Appl. Before Term	8.3%	24.1%	8.3%	24.4%	21.7%	23.7%	16.7%	17.4%	18.3%	4.6%	14.3%
31-40	Count	7	4	2	3	2	10	13	4	3	10	58
	Expected Count	2.7	2.1	1.8	3	1.7	10	6.7	6.4	4.4	19.2	58
	Days Appl. Before Term	19.4%	13.8%	8.3%	7.3%	8.7%	7.4%	14.4%	4.7%	5.0%	3.8%	7.4%
41+	Count	2	0	0	1	1	4	3	0	2	2	15
	Expected Count	0.7	0.6	0.5	0.8	0.4	2.6	1.7	1.6	1.1	5	15
	Days Appl. Before Term	5.6%	0.0%	0.0%	2.4%	4.3%	3.0%	3.3%	0.0%	3.3%	0.8%	1.9%
Total	Count	36	29	24	41	23	135	90	86	60	260	784
	Expected Count	36	29	24	41	23	135	90	86	60	260	784
	Days Appl. Before Term	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

group (representing 1.9% of the new freshmen) both applied at a higher rate than expected after classes began. The 31-40 year-old age group also applied at a higher than expected rate one week before classes began.

The results of the crosstabulation analysis indicated that the majority of 18-19 year-old students applied five months or more before the beginning of the quarter, whereas the non-traditional age students (23+) were much less likely to apply during that same period. The two age groups over 30 were more likely than any other age groups to apply after classes began, 12.1% and 13.3% respectively. The crosstabulation therefore explained the significance of the Spearman's rho correlation coefficient finding, though it should be noted that the numbers of the two age groups over 30 were very small.

Analysis of demographic variables. In the analysis of the demographic variables, Race was the only variable that was not found to be significantly linked to the student's date of application. When the significant demographic variables (Age, Sex, GED or High School Diploma), were taken together and analyzed using ANCOVA, age and sex were the variables found to be significant at α=.0125. Age was found significant at $F = (1,775) = 52.69$, p=.000 and Sex was found significant at $F = (1,775) = 9.52$, p=.002. GED or High School Diploma was no longer significant ($F = (1,775) = 3.30$, p=.07) and the interaction between Sex and Diploma or GED was non-significant ($F = (1,775) = .463$, p=.46). The ANCOVA indicated that 7.8% of the variance in the number of days that students applied before the beginning of the term was predicted from a combination of the three demographic variables (7.4% if analyzed without Diploma or GED).

Academic Ability

High School Rank by High School Class Size. Was there a relationship between

high school performance and date of application? The relationship between these variables was explored using the Spearman's rho correlation coefficient correlation because both independent and dependent variables were comprised of interval data but violated the assumption of a normal distribution.

The variable, High School Rank by High School Class Size, was problematic. Students who had earned a GED did not have data in this category because their high school information was incomplete. To avoid excluding all GED students from the analyses, an estimate was developed for GED students for this variable. After several trials and review of the data, the decision was made to assign to the GED students the score that equated to the 25th quartile of the mean scores for the students in the sample with a high school diploma. The rationale for using this score was based on the premise that many students dropped out of high school because they were not performing well academically but then they eventually earned a GED. Using the mean score for high school rank would have resulted in an overestimation of the GED students' high school performance.

The Spearman's rho correlation coefficient indicated that students' high school performance was associated with the date of application $r(736) = -.147$, $p < .001$. As students' high school ranks improved (a lower number indicated a higher rank as a percentage of class size) so did the number of days they applied before the quarter began. This result was corroborated when GED students were excluded from the analysis but did not yield the same results when the GED students were assigned an average rank rather than the rank associated with the 25th quartile.

The crosstabulation analysis lent further insight into high school performance and

date of application (see Table 10). The percentage of rank by class size was divided into quintiles—the first quintile being the students who were at the top of their class. The top quintile had more students applying five months or more before the beginning of the term than any other quintile group (42.3%). As the quintiles went down, as calculated by percentage of class rank by size, so did the number of students who applied 145 or more days before the quarter began. The last quintile had only 29.1% of the group in this category and was below the expected count for the cell.

The crosstabulation analysis of the students who were late applicants was less revealing. The fifth quintile had the largest percentage of students who applied two weeks or less before the beginning of the term (14.5%), but the trend did not persist for the other quintile groups. The top quintile had 9.5% of that group applying late (two weeks or less before the quarter began), the second quintile had 8.5%, the third quintile had 8.7%, and the fourth quintile had 12.5% of that group applying within two weeks of the beginning of the term. Of the entire new freshmen class, 22.4% were in the fifth quintile and 7.1% were in the top quintile in their high school class (see Table 11).

English Placement. At the research site, all new freshmen were required to take the English Placement Test before they could enroll in any English course. The students would be placed into one of three levels of remedial English or into Freshman English. The independent variable therefore had four categories. This variable was explored to determine if students' date of application varied with one measure of the students' academic ability—previously acquired English skills.

Analysis of Variance was selected as the inferential statistic. ANOVA could be used for the analysis because the Levene Statistic of equal variances was found to be

Table 10

Rank by Size and Days Applied Before Beginning of Term--Crosstabulation by Row Percentages

		% Within	Days Applied Before Beginning of Term										Total
			After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
HS Rank by HS Size	Top Quintile	Count	1	2	2	1	2	7	6	5	4	21	51
		Expected Count	2.1	1.6	1.6	2.5	1.5	8.8	5.7	5.6	3.9	17.6	51
		Rank/Size	2.0%	3.9%	3.9%	2.0%	3.9%	13.7%	11.8%	9.8%	7.8%	41.2%	100.0%
	2nd Quintile	Count	4	0	6	4	6	21	12	14	6	46	119
		Expected Count	4.8	3.8	3.8	5.7	3.6	20.6	13.3	13.1	9.2	41.1	119
		Rank/Size	3.4%	0.0%	5.0%	3.4%	5.0%	17.6%	10.1%	11.8%	5.0%	38.7%	100.0%
	3rd Quintile	Count	8	5	1	6	2	24	21	18	17	56	158
		Expected Count	6.4	5	5	7.6	4.8	27.4	17.6	17.4	12.2	54.6	158
		Rank/Size	5.1%	3.2%	0.6%	3.8%	1.3%	15.2%	13.3%	11.4%	10.8%	35.4%	100.0%
	4th Quintile	Count	4	8	4	10	2	31	18	19	16	58	170
		Expected Count	6.9	5.4	5.4	8.2	5.1	29.5	19	18.7	13.1	58.7	170
		Rank/Size	2.4%	4.7%	2.4%	5.9%	1.2%	18.2%	10.6%	11.2%	9.4%	34.1%	100.0%
	5th Quintile	Count	10	6	8	11	8	32	17	17	8	48	165
		Expected Count	6.7	5.2	5.2	8	5	28.6	18.4	18.2	12.7	57	165
		Rank/Size	6.1%	3.6%	4.8%	6.7%	4.8%	19.4%	10.3%	10.3%	4.8%	29.1%	100.0%
Total		Count	27	21	21	32	20	115	74	73	51	229	663
		Expected Count	27	21	21	32	20	115	74	73	51	229	663
		Rank/Size	4.1%	3.2%	3.2%	4.8%	3.0%	17.3%	11.2%	11.0%	7.7%	34.5%	100.0%

Table 11
Rank by Size and Days Applied Before Beginning of Term--Crosstabulation by Column Percentages

		% Within	After Classes	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	Total
Rank by Size	Top Quintile	Count	1	2	2	1	2	7	6	5	4	21	51
		Expected	2.1	1.6	1.6	2.5	1.5	8.8	5.7	5.6	3.9	17.6	51
		Days Before Term	3.7%	9.5%	9.5%	3.1%	10.0%	6.1%	8.1%	6.8%	7.8%	9.2%	7.7%
	2nd Quintile	Count	4	0	6	4	6	21	12	14	6	46	119
		Expected	4.8	3.8	3.8	5.7	3.6	20.6	13.3	13.1	9.2	41.1	119
		Days Before Term	14.8%	0.0%	28.6%	12.5%	30.0%	18.3%	16.2%	19.2%	11.8%	20.1%	17.9%
	3rd Quintile	Count	8	5	1	6	2	24	21	18	17	56	158
		Expected	6.4	5	5	7.6	4.8	27.4	17.6	17.4	12.2	54.6	158
		Days Before Term	29.6%	23.8%	4.8%	18.8%	10.0%	20.9%	28.4%	24.7%	33.3%	24.5%	23.8%
	4th Quintile	Count	4	8	4	10	2	31	18	19	16	58	170
		Expected	6.9	5.4	5.4	8.2	5.1	29.5	19	18.7	13.1	58.7	170
		Days Before Term	14.8%	38.1%	19.0%	31.3%	10.0%	27.0%	24.3%	26.0%	31.4%	25.3%	25.6%
	5th Quintile	Count	10	6	8	11	8	32	17	17	8	48	165
		Expected	6.7	5.2	5.2	8	5	28.6	18.4	18.2	12.7	57	165
		Days Before Term	37.0%	28.6%	38.1%	34.4%	40.0%	27.8%	23.0%	23.3%	15.7%	21.0%	24.9%
Total		Count	27	21	21	32	20	115	74	73	51	229	663
		Expected	27	21	21	32	20	115	74	73	51	229	663
		Days Before Term	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

non-significant (p=.153). The ANOVA yielded the result that the groups of students who placed into various English levels did not differ significantly based on their date of application (F(3, 711)=.404, p=.750). When the analysis was repeated using the Kruskal-Wallis non-parametric test, the non-significant results were confirmed (Sig.=.950).

Though the ANOVA yielded non-significant results, the crosstabulation analysis provided some additional information. The Preparatory English 1 group had only one student that applied within the last two weeks or after classes began, but there were only ten students total in the Preparatory English 1 category. The Preparatory English 2 Category (6.3% of the entire population) had 22.2% of the count applying within the last two weeks or after the beginning of the term. Preparatory English 3 (21.5% of the population) and Freshmen English (70.8% of the population) categories each had 11% of their respective populations applying within the last two weeks of school or after classes began (see Tables 12 and 13).

Math Placement. Though date of application did not appear to be influenced by previously acquired English skills, was there a difference between students who placed into a specific math level and date of application? As in the English placement analysis, the Levene test for equality of variances was non-significant (Sig.=.572), therefore ANOVA was determined to be the appropriate inferential statistic for Math Placement and Days Applied Before Term.

The difference between the math groups was not found to be significant at .0125, but it was significant at .05 (F(6, 706)=2.325, p=.031). Using Tukey's HSD post hoc test, it was detected that the two groups that were significantly different at α=.05 were the students who placed into the remedial course of Preparatory Math 1 (the lowest remedial

Table 12

English Placement by Days Applied Before Beginning of Term--Crosstabulation by Row

		% Within	After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	Total
English Placement	Prep English 1	Count	1	0	0	0	1	0	4	1	1	2	10
		Expected Count	0.5	0.4	0.3	0.5	0.3	1.7	1.2	1.1	0.8	3.3	10
		English Placement	10.0%	0.0%	0.0%	0.0%	10.0%	0.0%	40.0%	10.0%	10.0%	20.0%	100.0%
	Prep English 2	Count	4	5	1	2	1	4	4	5	2	17	45
		Expected Count	2.1	1.6	1.5	2.1	1.3	7.7	5.3	5.1	3.4	14.8	45
		English Placement	8.9%	11.1%	2.2%	4.4%	2.2%	8.9%	8.9%	11.1%	4.4%	37.8%	100.0%
	Prep English 3	Count	7	6	4	9	1	31	16	12	13	55	154
		Expected Count	7.1	5.6	5.2	7.1	4.5	26.5	18.3	17.4	11.6	50.6	154
		English Placement	4.5%	3.9%	2.6%	5.8%	0.6%	20.1%	10.4%	7.8%	8.4%	35.7%	100.0%
	Fresh. English	Count	21	15	19	22	18	88	61	63	38	161	506
		Expected Count	23.4	18.4	17	23.4	14.9	87	60.2	57.3	38.2	166.3	506
		English Placement	4.2%	3.0%	3.8%	4.3%	3.6%	17.4%	12.1%	12.5%	7.5%	31.8%	100.0%
Total		Count	33	26	24	33	21	123	85	81	54	235	715
		Expected Count	33	26	24	33	21	123	85	81	54	235	715
		English Placement	4.6%	3.6%	3.4%	4.6%	2.9%	17.2%	11.9%	11.3%	7.6%	32.9%	100.0%

Table 13

English Placement by Days Applied Before Beginning of Term--Crosstabulation by Column

			Days Applied Before Beginning of Term										Total
		% Within	After Classes	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
English Placement	Prep English 1	Count	1	0	0	0	1	0	4	1	1	2	10
		Expected Count	0.5	0.4	0.3	0.5	0.3	1.7	1.2	1.1	0.8	3.3	10
		Days Before Term	3.0%	0.0%	0.0%	0.0%	4.8%	0.0%	4.7%	1.2%	1.9%	0.9%	1.4%
	Prep English 2	Count	4	5	1	2	1	4	4	5	2	17	45
		Expected Count	2.1	1.6	1.5	2.1	1.3	7.7	5.3	5.1	3.4	14.8	45
		Days Before Term	12.1%	19.2%	4.2%	6.1%	4.8%	3.3%	4.7%	6.2%	3.7%	7.2%	6.3%
	Prep English 3	Count	7	6	4	9	1	31	16	12	13	55	154
		Expected Count	7.1	5.6	5.2	7.1	4.5	26.5	18.3	17.4	11.6	50.6	154
		Days Before Term	21.2%	23.1%	16.7%	27.3%	4.8%	25.2%	18.8%	14.8%	24.1%	23.4%	21.5%
	Freshman English	Count	21	15	19	22	18	88	61	63	38	161	506
		Expected Count	23.4	18.4	17	23.4	14.9	87	60.2	57.3	38.2	166.3	506
		Days Before Term	63.6%	57.7%	79.2%	66.7%	85.7%	71.5%	71.8%	77.8%	70.4%	68.5%	70.8%
Total		Count	33	26	24	33	21	123	85	81	54	235	715
		Expected Count	33	26	24	33	21	123	85	81	54	235	715
		Days Before Term	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

math course) and those who tested into the highest level of remedial math at the college, Intermediate Algebra (p=.036). The students who placed into Intermediate Algebra applied to the college sooner than students who placed into Preparatory Math 1. The results from the Kruskal-Wallis Test confirmed the ANOVA results with the Sig.=.003.

The crosstabulation analysis was used to investigate this relationship further (see Table 14). Of those students who placed into Preparatory Math, 13.2% (22 students) applied within two weeks of classes or after school started. The total number of students placing into Preparatory Math out of the entire new freshmen class was 23.4% (see Table 15). Students who placed into Introductory Algebra had 12.4% of their total count (44 students), Intermediate Algebra had 9.2% of their total count (9 students), College Algebra had 8.1% of their total count (5 students), and Finite Math had 18.8% of their total count (3 students), that applied within two weeks before, or after, classes began. Introductory Algebra II and Trigonometry/Calculus did not have any students that applied late.

Of those students who applied within one week of classes starting, 61.5% placed into Introductory Algebra and 30.8% placed into Preparatory Math. The overall placement into Preparatory Math for the entire sample was 23.4% and 49.4% for Introductory Algebra. It is apparent that students applying the last week or after classes began are over-represented in these two remedial math courses. This is not the case, however, if we look at the category that represents students who apply within two weeks of the beginning of the quarter. In that category, the Intermediate Algebra students and the College Algebra students are over-represented.

The students who placed into Preparatory Math did not apply as early as the

Table 14

Math Placement by Days Applied Before Beginning of Term--Crosstabulation by Row

			Days Applied Before Beginning of Term										
		% Within	After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	Total
Math Placement	Prep Math	Count	9	8	5	5	6	46	21	16	8	43	167
		Expected	7.7	6.1	5.6	7.7	4.7	28.6	19.9	19	12.6	55	167
		Placement	5.4%	4.8%	3.0%	3.0%	3.6%	27.5%	12.6%	9.6%	4.8%	25.7%	100.0%
	Intro Algebra	Count	18	16	10	18	9	51	43	46	28	113	352
		Expected	16.3	12.8	11.8	16.3	9.9	60.2	42	40	26.7	116	352
		Placement	5.1%	4.5%	2.8%	5.1%	2.6%	14.5%	12.2%	13.1%	8.0%	32.1%	100.0%
	Intro Algebra II	Count	0	0	0	0	0	0	4	2	1	7	14
		Expected	0.6	0.5	0.5	0.6	0.4	2.4	1.7	1.6	1.1	4.6	14
		Placement	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	28.6%	14.3%	7.1%	50.0%	100.0%
	Intermediate Algebra	Count	3	1	5	2	3	15	9	9	10	41	98
		Expected	4.5	3.6	3.3	4.5	2.7	16.8	11.7	11.1	7.4	32.3	98
		Placement	3.1%	1.0%	5.1%	2.0%	3.1%	15.3%	9.2%	9.2%	10.2%	41.8%	100.0%
	College Algebra	Count	1	1	3	6	1	7	5	6	6	25	61
		Expected	2.8	2.2	2.1	2.8	1.7	10.4	7.3	6.9	4.6	20.1	61
		Placement	1.6%	1.6%	4.9%	9.8%	1.6%	11.5%	8.2%	9.8%	9.8%	41.0%	100.0%
	Finite Math	Count	2	0	1	2	1	1	2	2	1	4	16
		Expected	0.7	0.6	0.5	0.7	0.4	2.7	1.9	1.8	1.2	5.3	16
		Placement	12.5%	0.0%	6.3%	12.5%	6.3%	6.3%	12.5%	12.5%	6.3%	25.0%	100.0%
	Trig/Calc	Count	0	0	0	0	0	2	1	0	0	2	5
		Expected	0.2	0.2	0.2	0.2	0.1	0.9	0.6	0.6	0.4	1.6	5
		Placement	0.0%	0.0%	0.0%	0.0%	0.0%	40.0%	20.0%	0.0%	0.0%	40.0%	100.0%
Total		Count	33	26	24	33	20	122	85	81	54	235	713
		Expected	33	26	24	33	20	122	85	81	54	235	713
		Placement	4.6%	3.6%	3.4%	4.6%	2.8%	17.1%	11.9%	11.4%	7.6%	33.0%	100.0%

Table 15

Math Placement by Days Applied Before Beginning of Term--Crosstabulation by Column

			Days Applied Before Beginning of Term										
		% Within	After Classes	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145+	Total
Math Placement	Prep Math	Count	9	8	5	5	6	46	21	16	8	43	167
		Expected	7.7	6.1	5.6	7.7	4.7	28.6	19.9	19	12.6	55	167
		Days Before	27.3%	30.8%	20.8%	15.2%	30.0%	37.7%	24.7%	19.8%	14.8%	18.3%	23.4%
	Intro Algebra	Count	18	16	10	18	9	51	43	46	28	113	352
		Expected	16.3	12.8	11.8	16.3	9.9	60.2	42	40	26.7	116	352
		Days Before	54.5%	61.5%	41.7%	54.5%	45.0%	41.8%	50.6%	56.8%	51.9%	48.1%	49.4%
	Intro Algebra II	Count	0	0	0	0	0	0	4	2	1	7	14
		Expected	0.6	0.5	0.5	0.6	0.4	2.4	1.7	1.6	1.1	4.6	14
		Days Before	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.7%	2.5%	1.9%	3.0%	2.0%
	Intermediate Algebra	Count	3	1	5	2	3	15	9	9	10	41	98
		Expected	4.5	3.6	3.3	4.5	2.7	16.8	11.7	11.1	7.4	32.3	98
		Days Before	9.1%	3.8%	20.8%	6.1%	15.0%	12.3%	10.6%	11.1%	18.5%	17.4%	13.7%
	College Algebra	Count	1	1	3	6	1	7	5	6	6	25	61
		Expected	2.8	2.2	2.1	2.8	1.7	10.4	7.3	6.9	4.6	20.1	61
		Days Before	3.0%	3.8%	12.5%	18.2%	5.0%	5.7%	5.9%	7.4%	11.1%	10.6%	8.6%
	Finite Math	Count	2	0	1	2	1	1	2	2	1	4	16
		Expected	0.7	0.6	0.5	0.7	0.4	2.7	1.9	1.8	1.2	5.3	16
		Days Before	6.1%	0.0%	4.2%	6.1%	5.0%	0.8%	2.4%	2.5%	1.9%	1.7%	2.2%
	Trig/Calc	Count	0	0	0	0	0	2	1	0	0	2	5
		Expected	0.2	0.2	0.2	0.2	0.1	0.9	0.6	0.6	0.4	1.6	5
		Days Before	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	1.2%	0.0%	0.0%	0.9%	0.7%
Total		Count	33	26	24	33	20	122	85	81	54	235	713
		Expected	33	26	24	33	20	122	85	81	54	235	713
		Days Before	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

students who placed into most other levels of math, but 40.1% of this population did apply more than three months before classes began. This was compared to 53.2% of the Introductory Algebra students, 71.4% of the Introductory Algebra II students, 61.2% of the Intermediate Algebra students, 60.6% of the College Algebra students, 43.8% of the Finite Math students, and 40% of the Trigonometry/Calculus students.

Analysis of the academic ability variables. Students' academic ability variables were analyzed together using ANCOVA. English placement was not included in this analysis since it proved to be non-significant in the earlier analyses. Only High School Rank by High School Size was found to be significant ($F = (1, 661) = 4.58$, $p=.03$) when analyzed with Math Placement ($F = (1,661) = 1.77$, $p=.10$). High School Rank by High School Size was only found significant at the $\alpha = .05$ level. When the two variables were analyzed in combination, they accounted for 2.2% of the variation in Days Applied Before Term.

Goals

Students' goals and commitment to the educational process are two areas that Tinto believed influenced retention (Tinto, 1987). This study attempted to measure those attitudes through the use of two independent variables—Degree Objective and Enrollment Objective. The statistical analyses explored the differences in Days Applied Before Term when students were sorted by the degree they aspired to and whether they planned to be full-time or part-time students.

Degree Objective. Students indicated on their admissions application if they were intending to enroll in a Bachelor's degree, an Associate's degree, or a certificate program. Only two students indicated that they were interested in obtaining a certificate, therefore

the certificate students were collapsed into the category of Associate's degree or less.

Analysis of Variance was used initially to analyze the data. This approach was selected because the independent variable, Degree Objective, was dichotomous and the dependent variable, Days Applied Before Term, was an integral variable. The Levene test for significance revealed that the assumption of equal variances was not violated (Sig.=.084) and so equal variances could be assumed. The results of the ANOVA, $F(1, 616)=5.36$, $p=.021$, were not significant at $\alpha=.0125$, but would be significant at $\alpha=.05$. Degree Objective may be related to the date of application.

As the Days Applied Before Term category was not normally distributed, the additional non-parametric Mann-Whitney test was also performed. This test also revealed significance at $\alpha=.05$, but not at the $\alpha=.0125$ level (Sig.=.015).

The crosstabulation analysis showed a definite distinction between the students with differing degree objectives and their date of application (see Table 16 and 17). Within two weeks of classes beginning, and after the term began, the students that indicated that they were working toward an Associate's degree (or less) had a higher than expected count, whereas the student's who professed to be working on a Bachelor's degree were underrepresented during this time period. The converse was true for the cell that represented application to the college 145 or more days before the term began. Students who were working toward a Bachelor's degree were over-represented in this category.

Of those who were working toward an Associate's degree, 13.7% applied within two weeks of classes beginning or after the term began as compared to 9% of those who were working on a Bachelor's degree. The distinction is not maintained if the cell

Table 16

Degree Objective by Days Applied Before Beginning of Term--Crosstabulation by Row

			Days Applied Before Beginning of Term										Total
			After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
Degree Objective	Associate's or Less	Count	16	15	11	7	10	61	41	38	20	86	305
		Expected Count	14.3	10.4	9.9	12.8	9.4	53.3	36	36.5	22.7	99.7	305
		% within Degree Objective	5.2%	4.9%	3.6%	2.3%	3.3%	20.0%	13.4%	12.5%	6.6%	28.2%	100.0%
	Bachelor's	Count	13	6	9	19	9	47	32	36	26	116	313
		Expected Count	14.7	10.6	10.1	13.2	9.6	54.7	37	37.5	23.3	102.3	313
		% within Degree Objective	4.2%	1.9%	2.9%	6.1%	2.9%	15.0%	10.2%	11.5%	8.3%	37.1%	100.0%
Total		Count	29	21	20	26	19	108	73	74	46	202	618
		Expected Count	29	21	20	26	19	108	73	74	46	202	618
		% within Degree Objective	4.7%	3.4%	3.2%	4.2%	3.1%	17.5%	11.8%	12.0%	7.4%	32.7%	100.0%

Table 17

Degree Objective by Days Applied Before Beginning of Term--Crosstabulation by Column

			Days Applied Before Beginning of Term										Total
		% Within	After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
Degree Objective	Associate's or Less	Count	16	15	11	7	10	61	41	38	20	86	305
		Expected Count	14.3	10.4	9.9	12.8	9.4	53.3	36	36.5	22.7	99.7	305
		Days Applied Before Term	55.2%	71.4%	55.0%	26.9%	52.6%	56.5%	56.2%	51.4%	43.5%	42.6%	49.4%
	Bachelor's	Count	13	6	9	19	9	47	32	36	26	116	313
		Expected Count	14.7	10.6	10.1	13.2	9.6	54.7	37	37.5	23.3	102.3	313
		Days Applied Before Term	44.8%	28.6%	45.0%	73.1%	47.4%	43.5%	43.8%	48.6%	56.5%	57.4%	50.6%
Total		Count	29	21	20	26	19	108	73	74	46	202	618
		Expected Count	29	21	20	26	19	108	73	74	46	202	618
		Days Applied Before Term	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

representing students who applied three weeks or more before the beginning of the term is included in the analysis. During that period, more students who were working toward Bachelor's degrees applied to the college.

In the last week before classes began, 71.4% of the students who applied indicated that they were working on an Associate's degree (or less). In the second to the last week before classes began, 55% indicated they were working toward an Associate's degree, and three weeks before classes began, only 26.9% indicated that they were working on an Associate's degree. In all other cells (except the cell representing 145 or more days) the difference between the students working toward an Associate's degree and Bachelor's degree is within 10 percentage points.

Enrollment Objective. Students' enrollment objective was also captured on the Admissions Application. Students indicated whether they intended to be part-time or full-time. This does not necessarily mean that they actually enrolled at their intended credit level, only that they had intended to become full-time or part-time at the time that they completed their application.

An Analysis of Variance was performed to determine if there was a difference between students who intended to be part-time or full-time and their date of application. The Levene Test for Equality of Variances was significant (Sig.=.000) therefore equal variances could not be assumed. Since at least one of the assumptions for ANOVA was markedly violated, the non-parametric Mann-Whitney Test was used instead (Griego & Morgan, 1998). The Mann-Whitney test was significant at α=.0125 (Sig.=.000). Students' date of application appeared to be related to their enrollment objective.

Crosstabulation was used to explore these differences (see Table 18 and 19). In

the seven contiguous cells that represented the students who applied the latest, students who expected to be part-time were over-represented. In the two cells that represented the students who applied the earliest, part-time students were underrepresented. Of the students who indicated that they would be part-time 28.1% applied within three weeks of classes beginning, or after classes started. During the same time period, 13.5% of the students intending to be full-time applied to the college. Even though there was a significant difference between part-time students and full-time students, it should be noted that only 24.4% of the entire sample were students who intended to be part-time.

Analysis of student goals. Enrollment Objective and Degree Objective were analyzed in combination using Factorial ANOVA. Enrollment was the only variable significant in the analysis ($F = (1, 589) = 36.53$, $p=.00$). Degree Objective was non-significant at $F = (1, 589) = 1.875$, $p=.171$. The interaction between Enrollment Objective and Degree Objective was non-significant ($F = (1,589) = 2.20$, $p=.139$). Enrollment Objective and Degree Objective accounted for 6.6% of the variance in the number of days that students apply before the beginning of the quarter.

Most Influential Variables in the Model

The final statistical analysis that was performed for Hypothesis One was a review of all the significant variables ($\alpha = .05$) with relation to Days Applied Before Term. The more lenient alpha level was used to make the model as inclusive as possible. It should be noted that High School Rank by High School Size was the only variable that was included in the model that was not significant at $\alpha=.0125$.

The covariates, High School Rank by High School Size and Age were analyzed with the factors of Sex and Enrollment Objective. The interaction between Sex and

Table 18

Enrollment Objective by Days Applied Before Beginning of Term--Crosstabulation by Row

			Days Applied Before Beginning of Term										Total
			After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
Enrollment Objective	Part-time	Count	13	14	7	14	7	49	22	20	11	25	182
		Expected Count	8.5	6.8	5.4	9.5	5.4	30.7	20.7	20	14.2	60.7	182
		% within Enrollment Objective	7.1%	7.7%	3.8%	7.7%	3.8%	26.9%	12.1%	11.0%	6.0%	13.7%	100.0%
	Full-time	Count	22	14	15	25	15	77	63	62	47	224	564
		Expected Count	26.5	21.2	16.6	29.5	16.6	95.3	64.3	62	43.8	188.3	564
		% within Enrollment Objective	3.9%	2.5%	2.7%	4.4%	2.7%	13.7%	11.2%	11.0%	8.3%	39.7%	100.0%
Total		Count	35	28	22	39	22	126	85	82	58	249	746
		Expected Count	35	28	22	39	22	126	85	82	58	249	746
		% within Enrollment Objective	4.7%	3.8%	2.9%	5.2%	2.9%	16.9%	11.4%	11.0%	7.8%	33.4%	100.0%

Table 19

Enrollment Objective by Days Applied Before Beginning of Term--Crosstabulation by Column

			Days Applied Before Beginning of Term										
		% Within	After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	Total
Enrollment Objective	Part-time	Count	13	14	7	14	7	49	22	20	11	25	182
		Expected Count	8.5	6.8	5.4	9.5	5.4	30.7	20.7	20	14.2	60.7	182
		Days Applied Before Term	37.1%	50.0%	31.8%	35.9%	31.8%	38.9%	25.9%	24.4%	19.0%	10.0%	24.4%
	Full-time	Count	22	14	15	25	15	77	63	62	47	224	564
		Expected Count	26.5	21.2	16.6	29.5	16.6	95.3	64.3	62	43.8	188.3	564
		Days Applied Before Term	62.9%	50.0%	68.2%	64.1%	68.2%	61.1%	74.1%	75.6%	81.0%	90.0%	75.6%
Total		Count	35	28	22	39	22	126	85	82	58	249	746
		Expected Count	35	28	22	39	22	126	85	82	58	249	746
		Days Applied Before Term	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Enrollment Objective was not significant (F = (1,691) = .52, p=.471). All the variables remained significant in the ANCOVA analysis. High School Rank by High School Size was significant at (F = (1,691) = .6.55, p=.011), Age was significant at (F = (1,691) = 46.25, p=.000), Sex was significant at (F = (1,691) = 6.74, p=.010) and Enrollment Objective was significant at F = (1, 691) = 25.17, p=.000. The model represented 11.1% of the total variance in the number of days that students apply before the beginning of the quarter.

Hypothesis One, students who apply late have different characteristics from students who apply earlier, was found to be significant. The model for Hypothesis One, though it only accounts for 11.1% of the variance, illustrates that demographics, academic ability, and goals, all have a relationship with the date of application. Men, students not coming directly from high school, students who did not perform as well in high school, and students who intend to be part-time are all more likely to apply later than their counterparts.

Hypothesis Two

Variables

Students who apply late do not perform as well academically as those students who apply earlier. Hypothesis Two explores two variables, First Quarter GPA and First Quarter Earned hours by First Quarter Attempted Hours, that measure academic success after the first term of enrollment and how these variables relate to students' date of application.

Given that the variable, Days Applied Before Term, was not normally distributed, Spearman rho correlation coefficient was deemed the appropriate statistical test to be

used to determine if relationships existed between the date of application and academic success for the first term of enrollment. In both cases, a significant correlation was not found (Sig.=.614 for First Quarter GPA, and Sig.=.420 for the percentage of First Quarter Earned Hours by Attempted Hours). Even though the normal distribution assumption was violated, the test was repeated using Pearson's correlation coefficient. The correlations were once again, non-significant.

Crosstabulation analysis was done to better view the distribution of grades and credits completed based on date of application. The cell that had the highest percentage of students (26.8%) who did not earn any credits for the quarter, was the cell that represented the students who applied the third week before classes started. The second highest segment of students who did not earn any credit their first quarter (16.7%) were the students who applied after classes began (see Table 20 and Table 21).

The group that completed the most credits as a percentage of the courses for which they registered was the group of students who applied the fourth week before the term began (82.6% completed 75% or more of the credits for which they registered their first quarter). That was also the group with the fewest members (23). More than 70% of the students who applied within two weeks of the term beginning, or after the term began, completed 75% or more of the credits they took their first quarter.

The crosstabulation analysis of grades for the first quarter revealed a pattern in students who had less than a 2.0 GPA their first quarter (see Table 22). Beginning with the category of students who applied after classes began, through to the group of students who applied approximately five months before the quarter began, the percentage of students earning less than a 2.0 GPA their first quarter steadily decreased. The percentage

Table 20
Earned by Attempted Hours and Days Applied Before Term--Crosstabulation

		Days Applied Before Beginning of Term										Total
	% Within	After Class Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
No Earned Credit	Count	6	4	3	11	1	19	13	10	4	28	99
	Expected Count	4.6	3.7	3	5.2	2.9	17.1	11.4	10.9	7.6	32.7	99
	Days Applied Before Term	17%	14%	13%	27%	4%	14%	14%	12%	7%	11%	13%
Less than 25%	Count	0	0	0	0	1	1	2	2	1	3	10
	Expected Count	0.5	0.4	0.3	0.5	0.3	1.7	1.2	1.1	0.8	3.3	10
	Days Applied Before Term	0%	0%	0%	0%	4%	1%	2%	2%	2%	1%	1%
25% to 49%	Count	3	0	2	4	1	6	3	3	2	11	35
	Expected Count	1.6	1.3	1.1	1.8	1	6	4	3.8	2.7	11.5	35
	Days Applied Before Term	8%	0%	8%	10%	4%	4%	3%	4%	3%	4%	5%
50% to 74%	Count	1	4	2	8	1	16	12	5	5	37	91
	Expected Count	4.2	3.4	2.8	4.8	2.7	15.7	10.5	10	7	30	91
	Days Applied Before Term	3%	14%	8%	20%	4%	12%	13%	6%	8%	14%	12%
75% or more	Count	26	21	17	18	19	93	60	66	48	179	547
	Expected Count	25.2	20.3	16.8	28.7	16.1	94.4	63	60.2	42	180.5	547
	Days Applied Before Term	72%	72%	71%	44%	83%	69%	67%	77%	80%	69%	70%
Total	Count	36	29	24	41	23	135	90	86	60	258	782
	Expected Count	36	29	24	41	23	135	90	86	60	258	782
	Days Applied Before Term	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 21

Earned by Attempted Hours and Days Applied Before Term--Row Crosstabulation

		Days Applied Before Beginning of Term										Total
	% Within	After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
No Earned Credit	Count	6	4	3	11	1	19	13	10	4	28	99
	Expected Count	4.6	3.7	3	5.2	2.9	17.1	11.4	10.9	7.6	32.7	99
	1st Term Earned by Attempted	6%	4%	3%	11%	1%	19%	13%	10%	4%	28%	100%
Less than 25%	Count	0	0	0	0	1	1	2	2	1	3	10
	Expected Count	0.5	0.4	0.3	0.5	0.3	1.7	1.2	1.1	0.8	3.3	10
	1st Term Earned by Attempted	0%	0%	0%	0%	10%	10%	20%	20%	10%	30%	100%
25% to 49%	Count	3	0	2	4	1	6	3	3	2	11	35
	Expected Count	1.6	1.3	1.1	1.8	1	6	4	3.8	2.7	11.5	35
	1st Term Earned by Attempted	9%	0%	6%	11%	3%	17%	9%	9%	6%	31%	100%
50% to 74%	Count	1	4	2	8	1	16	12	5	5	37	91
	Expected Count	4.2	3.4	2.8	4.8	2.7	15.7	10.5	10	7	30	91
	1st Term Earned by Attempted	1%	4%	2%	9%	1%	18%	13%	6%	6%	41%	100%
75% or more	Count	26	21	17	18	19	93	60	66	48	179	547
	Expected Count	25.2	20	16.8	28.7	16.1	94.4	63	60.2	42	180.5	547
	1st Term Earned by Attempted	5%	4%	3%	3%	4%	17%	11%	12%	9%	33%	100%
Total	Count	36	29	24	41	23	135	90	86	60	258	782
	Expected Count	36	29	24	41	23	135	90	86	60	258	782
	1st Term Earned by Attempted	5%	4%	3%	5%	3%	17%	12%	11%	8%	33%	100%

Table 22

First Term GPA by Days Applied Before Term--Crosstabulation by Column

			Days Applied Before Beginning of Term										Total
		% Within	After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
First Term GPA	3.0 and Above	Count	12	10	8	13	11	62	40	39	24	82	301
		Expected	13.8	11.1	9.2	15.7	8.8	51.8	34.6	33	23	99.8	301
		Days Before Term	33%	35%	33%	32%	48%	46%	44%	45%	40%	32%	38%
	2.0 through 2.99	Count	8	8	7	6	5	33	26	27	23	87	230
		Expected	10.6	8.5	7	12	6.7	39.6	26.4	25.2	17.6	76.3	230
		Days Before Term	22%	28%	29%	15%	22%	24%	29%	31%	38%	34%	29%
	1.0 through 1.99	Count	8	6	5	9	5	19	6	8	7	52	125
		Expected	5.7	4.6	3.8	6.5	3.7	21.5	14.3	13.7	9.6	41.5	125
		Days Before Term	22%	21%	21%	22%	22%	14%	7%	9%	12%	20%	16%
	.001 through .99	Count	2	0	1	2	0	2	3	2	1	8	21
		Expected	1	0.8	0.6	1.1	0.6	3.6	2.4	2.3	1.6	7	21
		Days Before Term	6%	0%	4%	5%	0%	2%	3%	2%	2%	3%	3%
	0%	Count	6	5	3	11	2	19	15	10	5	31	107
		Expected	4.9	4	3.3	5.6	3.1	18.4	12.3	11.7	8.2	35.5	107
		Days Before Term	17%	17%	13%	27%	9%	14%	17%	12%	8%	12%	14%
Total		Count	36	29	24	41	23	135	90	86	60	260	784
		Expected	36	29	24	41	23	135	90	86	60	260	784
		Days Before Term	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

of students who applied to the college after classes started and earned less than a 2.0 GPA was 44.5%; the percentage of students who applied within one week of the quarter beginning and had less than a 2.0 GPA was 37.9%; the percentage of students who applied within the second week of the term beginning and earned less than a 2.0 GPA was 37.5%; and the percentage of students who applied within the fourth week of the term beginning and had less than a 2.0 GPA was 30.4%. The percentage of students who applied the fourth month of the quarter beginning and had less than a 2.0 GPA was 21.7%. The trend illustrates that the earlier students applied, the less likely they were to have earned less than a 2.0 GPA their first quarter. The two groups that did not fall within this trend were the students who applied three weeks before the quarter began (53.7% were below a 2.0) and the students who applied five months or more before the quarter started and earned less than a 2.0 GPA their first term of enrollment (35%).

The students who had a 3.0 GPA or higher were found in larger percentages in the groups of students who applied four weeks or more before the beginning of the term. The one exception was, once again, the students who applied five months or more before classes started (31.5% had a 3.0 GPA or better). Students who applied after classes began had 33.3% of their group earning a 3.0 GPA or better their first quarter. Students who applied within one week of the quarter beginning had 34.5% of the group earning a GPA of 2.0 or better; students who applied within two weeks of the quarter beginning had 33.3% of their group earning a GPA of 3.0 or better; and students who applied within three weeks of the quarter beginning had 31.7% of their group earning a GPA of 3.0 or better. After these four groups of late applicants, students who applied within four weeks to within five months of the beginning of the term all had at least 40% or more earning a

3.0 GPA or better their first quarter.

Hypothesis Two, students who apply late do not perform as well academically as students who apply earlier, was not found to be significant, although patterns were revealed that should be further investigated. The patterns indicated that students who applied within three weeks of the term beginning (or after the term began) were more likely to have a lower GPA and complete fewer hours than students who applied earlier. The crosstabulation results that yielded these patterns must be viewed as suspect, since more than 20% of the cells had expected counts less than five and none of the statistical tests performed yielded a significant result.

Hypothesis Three

Variables

Students who apply late are less likely to re-enroll the following term than students who apply earlier. This hypothesis was tested using the variables of Days Applied Before Term and Enrolled Subsequent Quarter. The analysis of this hypothesis was conducted using crosstabulations, Pearson's chi-square and eta. These were deemed the most appropriate statistical tests given that Enrolled Subsequent Term is a nominal variable and Days Applied Before Term could be used as an interval variable or recoded as a nominal variable.

The crosstabulations were initially run with Days Applied Before Term as an interval variable. The eta value for this test was .63. Days Applied Before Term and Consecutive Quarter therefore shared 39% of common variance.

As before, Days Applied Before Term was then recoded into categories of days based on number of weeks before the term. Crosstabulations and the Pearson chi-square

value was calculated. The Pearson chi-square value was found to be significant at α=.0125 (Sig.=.005).

The crosstabulation highlighted a pattern in students who did not enroll for a second term based on date of application (see Table 23 and 24). Those students who applied to college within three weeks of the term beginning, or after classes started, had a higher percentage of not enrolling for the subsequent term than any of the other groups who applied earlier. Of those who applied after classes started, 47.2% did not return the next term. Of those students who applied three weeks, two weeks, and within one week of the beginning of the term, 36.6%, 33.3%, and 27.6% respectively, did not return the following term.

Hypothesis Three, students who apply late are less likely to reenroll the subsequent term, proved to be significant. Students who applied within three weeks of the term beginning or later, had a higher than expected number in the group of students who did not enroll the following term than the group of students who applied earlier.

Description of Late Applicants

Students who applied late were different from students who applied earlier. Several significant results were obtained in the analysis of demographic characteristics, academic ability, and goals with respect to date of application.

As might be expected, the group of students who applied after the term began exhibited some distinguishing traits. They had the largest percentage of GED recipients than any other group of students based on date of application (22.2%). They had the lowest percentage of 17-18 year-old students (8.3%), and, within this group, the highest percentage of students 31 and over (25%). Students who applied after classes began had

Table 23

Subsequent Enrollment by Days Applied Before Term--Crosstabulation by Row

			Days Applied Before Beginning of Term										Total
			After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
Enrolled Subsequent Term?	Only 1 Term	Count	17	8	8	15	5	25	19	17	9	54	177
		Expected Count	8.1	6.5	5.4	9.3	5.2	30.5	20.3	19.4	13.5	58.7	177
		% within Enrolled Subsequent Term?	9.6%	4.5%	4.5%	8.5%	2.8%	14.1%	10.7%	9.6%	5.1%	30.5%	100.0%
	Enrolled Subsequent Term	Count	19	21	16	26	18	110	71	69	51	206	607
		Expected Count	27.9	22.5	18.6	31.7	17.8	104.5	69.7	66.6	46.5	201.3	607
		% within Enrolled Subsequent Term?	3.1%	3.5%	2.6%	4.3%	3.0%	18.1%	11.7%	11.4%	8.4%	33.9%	100.0%
Total		Count	36	29	24	41	23	135	90	86	60	260	784
		Expected Count	36	29	24	41	23	135	90	86	60	260	784
		% within Enrolled Subsequent Term?	4.6%	3.7%	3.1%	5.2%	2.9%	17.2%	11.5%	11.0%	7.7%	33.2%	100.0%

Table 24

Subsequent Enrollment by Days Applied Before Term--Crosstabulation by Column

			Days Applied Before Beginning of Term										Total
		% Within	After Classes Began	1-7	8-14	15-21	22-28	29-57	58-86	87-115	116-144	145 or More	
Enrolled Subsequent Term?	Only 1 Term	Count	17	8	8	15	5	25	19	17	9	54	177
		Expected Count	8.1	6.5	5.4	9.3	5.2	30.5	20.3	19.4	13.5	58.7	177
		Days Applied Before Term	47.2%	27.6%	33.3%	36.6%	21.7%	18.5%	21.1%	19.8%	15.0%	20.8%	22.6%
	Enrolled Subsequent Term	Count	19	21	16	26	18	110	71	69	51	206	607
		Expected Count	27.9	22.5	18.6	31.7	17.8	104.5	69.7	66.6	46.5	201.3	607
		Days Applied Before Term	52.8%	72.4%	66.7%	63.4%	78.3%	81.5%	78.9%	80.2%	85.0%	79.2%	77.4%
Total		Count	36	29	24	41	23	135	90	86	60	260	784
		Expected Count	36	29	24	41	23	135	90	86	60	260	784
		Days Applied Before Term	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

16.7% of their group earn no credits for their first quarter of enrollment; this was second only to students who applied within three weeks of the term. Forty-five percent of this group earned less than a 2.0 GPA their first term of enrollment (only students who applied within three weeks of the quarter had a higher percentage).

Students who applied within one week of the first day of the term formed the most distinctive group from all others that applied at differing times. They placed at a higher percentage into remedial math and English than the total population of new freshmen and at a higher rate than all other separate groups of students based on date of application. They also were more likely to be working towards an Associate's degree (more than any other group), rather than a Bachelor's degree, and were more interested in part-time enrollment (with 50% of the group seeking part-time enrollment—the highest of all groups).

The students who applied within one week of classes came from the fourth and fifth quintile of their high school class at a higher percentage than the larger population (tied only with the group that applied three weeks before the quarter) and held GEDs at a higher rate (though the group of students who applied within three weeks before the beginning of the term had the highest overall percentage of GEDs within their group compared to all the other groups who applied at some point before the beginning of the term (19.5%). Most of this group were of non-traditional age, and fewer of them were in the 17-18 year old range than any of the other groups that applied more than one week before the beginning of the term.

Students applying within two weeks of the quarter beginning had slightly different characteristics from the group that applied the last week before the term began.

This group had more 19-20, and 21-22 year-olds than the general new freshmen population. They, too, were from the fifth quintile of their high school class but did not place into remedial math and English at a higher rate than the larger population. As with the group who applied one week before classes began, this group had a higher percentage of students striving towards an Associate's degree and indicating that they wanted to be part-time than the larger new freshmen population.

Students applying within three weeks of the beginning of the quarter had a higher rate of GEDs than the new freshmen population as a whole, and those with high school diplomas placed into the fifth quintile of their high school class at a higher rate. They had fewer 17-18 year-olds than the larger population but had more 25-30 year-olds. They did not place into remedial English and math at substantially higher rates. This group was still more likely to want to be part-time than the larger population, but sought a Bachelor's degree instead of an Associate's. The students who applied within three weeks of the term beginning had the highest percentage of students who did not earn any credits their first quarter of enrollment (26.8%) and had the highest percentage of students who earned credit for less than 50% of the credits they attempted (9.8% of the students in this category). They also had the highest percentage of students who earned less than a 2.0 their first term of enrollment (53.7%).

Students applying within four weeks of the beginning of the quarter were beginning to look more like the larger population of new freshmen. They had high school diplomas at approximately the same percentage as the general population, placed into remedial English and math at about the rate of the general population, and had indicated that they were working towards a Bachelor's degree at approximately the same rate as the

larger group of new freshmen. They remained different in that they still were more interested in part-time enrollment, they were still over-represented in the fifth quintile of their high school class, and still had a smaller traditional age population than the new freshmen as a whole. (The traditional age students do not become substantial portion of the population until the point of application of three months or more before the beginning of the quarter.)

There was a point of transition between applying three weeks and four weeks before the term began for women, men, and students who did not re-enroll for the subsequent term. Women were less likely to apply three weeks or less before the term, and men were more likely to apply during that same period. Students who did not re-enroll for the subsequent term were more likely to have applied three weeks or less from the start of classes.

Another point where there was a juxtaposition of the numbers was between the third and fourth month before classes began. Enrollment Objective, GED or High School Diploma, and Age were all variables that had categories that shifted at the point of application more than three months before the term began.

Students who planned to be part-time were over-represented in the categories of students who applied three months or less before the quarter began. This status shifted at the point of application fours months or more before the beginning of the term. Part-time students were then under-represented in those categories.

This same pattern appeared for the category of students who had a GED instead of a high school diploma. Their numbers were higher than expected in the cells representing students who applied three months or less before the start of classes, and then shifted to

being lower than expected in the cells representing students who applied four months or more before the beginning of the term.

One other such pattern emerged in the variable, Age. The 17-18 year-old age group numbers were lower than expected in the cells representing students who applied three months or less before the beginning of the quarter. In the next cells that represented students who applied fours months or more before the beginning of the term, the 17-18 year-olds were over-represented.

This distinction would not have been apparent by merely calculating the percentages of the categories of students applying each of the three weeks before classes began. Even though this information was also useful, it did not yield the insight about the patterns of behavior for specific groups of students and when they applied to college. By analyzing the different cohorts both as groups with specific characteristics (demographic, academic, and goals), and as groups that applied during a set timeframe, new information was gleaned. To analyze the groups of students only by date of application would skew the findings because of the predominance of some categories of students within the freshmen class (e.g. women comprised 66% of the new freshmen population and students with a high school diploma comprised 90.8% of this class).

Summary

Table 25 summarizes the major findings of this research. Age, sex, and whether a student earned a GED or high school diploma proved to be significant variables in relation to the number of days that students applied before the beginning of the term. Race was not a contributing factor. Men, more than women, students with a GED rather than a high school diploma, and students not entering college directly after high school

(19 or older) were more likely to apply within the last three weeks of the term, or after classes began.

High School Rank by High School Size (at α=.01) and Math Placement (only at α=.05) were the two academic ability variables that proved to be significant. Students who placed into the 5th quintile of their high school class were consistently over-represented in the categories of late applicants.

Students who placed into Intermediate Algebra applied earlier than students who placed into Preparatory Math. It should also be noted that 86.2% of the students who applied within the last three weeks before the beginning of the term placed into some level of remedial math. Of the entire population of new freshmen, 88.5% placed into one of the four levels of developmental math.

Degree Objective and Enrollment Objective were the two variables that measured the students' goals. Both of these variables were found to be significant in relation to the date of application. Degree Objective at α=.05 and Enrollment Objective at α=.0125. Students who indicated that they were striving for an Associate's degree, and students who indicated that they wanted to be part-time applied later than students who were working towards a bachelor's degree and students who indicated that they would be full-time.

Students who applied within the last two weeks before the quarter began were more likely to be seeking an Associate's degree and indicated that they wanted to attend college full-time. The third week before the quarter began this relationship reversed for degree objective, and more of them were seeking a Bachelor's degree.

When analyzed in combination, Age, Sex, High School Rank by High School

Table 25
Student Characteristics Based on Date of Application

	Applied Third Week Before Term or Later	Applied Third Month to Fourth Week Before Term	Applied Fourth Month Before Term or Earlier
Demographic Characteristics			
Sex			
Female	53.1%	66.9%	69.6%
Male	46.9%	33.1%	30.4%
Age			
17-18	16.9%	19.4%	46.6%
19-20	29.3%	29.8%	26.7%
21-22	15.4%	8.9%	8.1%
23-24	6.9%	7.7%	3.9%
25+	31.5%	34.3%	14.5%
GED	16.9%	11.7%	5.2%
Academic Ability			
HS Rank/HS Size			
Top Quintile	5.9%	7.2%	8.5%
2nd and 3rd Quintile	33.7%	41.1%	44.5%
4th Quintile	25.7%	24.4%	26.3%
5th Quintile	34.7%	27.3%	20.7%
Remedial English	33.6%	27.1%	29.2%
Remedial Math	86.2%	91.2%	87.6%
Goals			
Part-time Enrollment	38.7%	33.5%	14.4%
Associates Degree	51.0%	56.0%	44.7%
Academic Achievement			
GPA<2.0 1st Term	44.6%	28.6%	30.5%
Persistence			
Did not Enroll 2nd Term	36.9%	19.8%	19.7%

Class Size, and Enrollment Objective proved to be the significant variables. These variables constituted 11.1% of the variation in the students' date of application.

Students who apply late do not perform as well academically as students who apply earlier. The variables of First Term GPA and percentage of First Term Earned Hours by First Term Attempted Hours were used to explore this hypothesis. Neither variable proved to have a significant relationship to Days Applied Before Term.

Nonetheless, 44.6% of the students who applied within the last three weeks before classes started (or after) had less than a 2.0 GPA by the end of their first quarter as compared with 29.8% for the rest of the new freshmen sample. This group of students who arrive within three weeks of the term beginning constitutes 16.6% of the new freshmen class.

Students who apply late are less likely to re-enroll the following term than students who apply earlier. This hypothesis was supported by the data. Days Applied Before Term was found to be significantly related to the variable representing whether or not the student re-enrolled the subsequent term. There were also higher than expected numbers in all cells representing students who applied three weeks or less before the beginning of the term and did not re-enroll the subsequent quarter. A total of 27.1% of all students who did not re-enroll were students who applied late.

CHAPTER FOUR

DISCUSSION

High Risk Attrition Profile

In one qualitative study, academic advisors' anecdotal impressions characterized the traditional-age late-admit as under-prepared and less motivated. This same group of advisors believed that the non-traditional late-admit was also under-prepared but did not lack motivation. It was life's circumstances that resulted in their late arrival, not a lack of commitment or motivation (Weiss, 1999). Were these advisors correct in their preconceived notions about late applicants?

Common sense might suggest that students who apply within a few weeks of the quarter beginning are less motivated, less committed, and less likely to succeed than students who have prepared well in advance for the transition to college. This may be common sense, but is it reality?

The literature indicates that students who are older than traditional-age students, part-time, in need of remedial courses, and seeking an Associate's degree are more likely to fall prey to attrition (Windham, 1994). Individual institutions may have conducted research to determine the relationship between student characteristics and late admission on the process of attrition, but if this type of research exists, it was not found during the process of writing this dissertation. This current study therefore attempted to discover if late applicants fit the high-risk profile established by the literature, and if they do, do they become attrition statistics?

The high-risk attrition profile starts with pre-entry attributes as outlined in the first level of Tinto's model of institutional departure. Students bring with them to college a

certain set of demographic characteristics and skills. In this model, older students, minority students, women, students with a poor academic history in high school, students who are under-prepared academically for college, and students who have earned a GED instead of a high school diploma are at higher risk for attrition. This profile is further refined by adding traits from the second level of the model--students' goals and commitment to higher education. For the purposes of this current research, goals and commitment were operationalized as students' degree and enrollment objectives. The third level in Tinto's model includes academic performance in college as a predictor of attrition. In this study, students' first quarter grade point average was used to measure this variable (Tinto, 1987).

This current study confirmed that late applicants fit many of the attributes of a high-risk profile for attrition—late applicants possess risk factors associated with attrition to a greater degree than students who apply earlier. However, there were a few attributes that are generally accepted as high-risk in the retention literature, that were not found to be associated with late application in this current study. While the professional and research literature would suggest that women, minorities, and students who do not perform well academically are at high risk for attrition, the findings from this current study indicated that women and minorities were not over-represented in late applicants and the first term grade point average and date of application were not statistically associated (though further research should be done on the relationship between first quarter academic achievement as it relates to late application).

The rest of the traits that embody the profile were found to be statistically associated with date of application. The groups of students who applied late had a higher

percentage of older students, students with GEDs, students who were working towards an Associate's degree instead of a Bachelor's degree, students who were part-time, students who placed into the lowest quintile of their high school class, and students who placed into remedial courses.

Though the higher percentages were more pronounced in the students who applied within a few weeks of the term beginning (or after classes started), in almost all cases, the trend formally shifted to a high risk profile for those students who applied less than four months before the term. This was not true, however, for degree objective. The shift from students indicating that they were working towards a Bachelor's Degree (low-risk) to students who wanted to earn an Associate's degree (higher risk) occurred for students who applied less than four weeks before the beginning of the quarter, not four months.

Given these findings, did these students persist at the same rate as students who applied earlier? The association between the high-risk profile, late application, and attrition was affirmed. Groups of students who applied three weeks or less before the beginning of the term had higher percentages of attrition than students who applied earlier. The students who applied three weeks or less before the quarter began had 36.9% of their group fail to return for the subsequent quarter as compared to 19.7% of students who applied more than three weeks before the quarter.

Implications

It has already been established that attrition is costly to the individual, university, and society. In reviewing the results of this research, what can be done to ensure that every student is given the maximum opportunity to succeed in college thereby reducing

attrition? This line of inquiry has policy and programming implications.

Late applicants have characteristics that are associated with attrition. Would it be beneficial to have students with these characteristics apply earlier, or would this high-risk profile transcend the date of application and still result in attrition? At the conclusion of this research, the question still remains: what impact does late application have on attrition? If we can change the behavior of students and convince them to apply earlier, will this also positively influence their persistence? If students apply within a timeframe that allows them to apply for financial aid, test, attend orientation, receive effective advising, and get into courses that will optimize their success, will this reduce attrition? This research does not answer these questions, but it begins the dialogue and encourages future research.

Regardless of the question about retention, a more practical implication of the study may be to explore what can be done to encourage earlier application so that colleges can better manage their resources. Late applicants put a tremendous strain on the personnel and financial resources of access colleges. It is difficult to predict adequately the number of courses and instructors that will be necessary to accommodate late applicants. Students who apply late are often in need of special services and instruction. Arranging to find and hire the most qualified instructors to teach remedial courses is a challenge even without time constraints—but it is absolutely necessary to select the right instructors if these high-risk students are to succeed (Cross, 1976). In addition, late applicants tax the intake services that must struggle to try to meet the needs of the onslaught of students who arrive at the last hour—admissions, financial aid, testing, orientation and advising, and registration.

Reasons for late application

Based on the characteristics proven to be associated with late application, what are the plausible explanations for this behavior? One possible explanation could be, as some faculty believe, that late applicants do not understand the timeline for college admission (Weiss, 1999). Older students and students with a GED (many of whom may be first generation college students) may not be aware of the admissions process and the need to apply early (Hoyt, 1999). If this is the case, then the Admissions Office, in conjunction with the marketing component of the college, will need to make a concerted effort to reach the designated target audiences and raise awareness of the admissions process.

This awareness effort could be accomplished through outreach programs to churches, community organizations, and GED sites as well advertisements on the radio and in the printed media. These programs should emphasize and explain the benefits to the student of applying early. The students could be informed of the financial advantages of being accepted earlier so that their financial aid package could be awarded while maximum institutional and federal funds were still available. They could also be informed of the scheduling advantages if they were to apply early and then register before class availability is diminished.

The first generation college students, GED recipients, older students, and students who have not performed well academically in the past (those students with a low rank in high school and those who placed into remedial courses) may also be applying late because they are fearful about their ability to succeed in college. According to some academic advisors, "It's only the onset of the first day of class that moves the non-

traditional late admit to the door of the college"--a "now or never" attitude prevails (Weiss, 1999). These students may be afraid that they will not be admitted, or, if they are, they will be unable to compete with the other students. They may procrastinate until they cannot procrastinate any longer. Their fears and insecurities make them question their abilities (Weiss, 1999).

Educational outreach programs could encourage this group of fearful students to apply earlier, especially if these programs used non-traditional students to promote them. Mentoring and advising programs could help to ameliorate their fears and increase their confidence so that they would apply earlier instead of being driven by desperation and the impending first day of class.

The third factor that may produce late applicants, is financial and logistical constraints. Older students and students who indicate that they intend to be part-time may be applying late because they are concerned about the logistics of paying for college and arranging their jobs, families, and other commitments to accommodate attending classes (Hoyt, 1999). With both groups, late application may not indicate a lack of commitment but rather a lack of financial and social support. Though applying late will not alleviate the problems, it will give them more time to try to make arrangements. In some cases, they fatalistically decide that they will proceed with their goals even if the cost is high, socially, and/or financially. The need for change is so compelling that they work through their reservations and complete the admissions process (Weiss, 1999).

Once again, outreach programs may be beneficial for students who are in need of financial and other types of support. These students may not be aware of Federal financial aid programs, scholarships, employer tuition reimbursement, and other financial

aid resources. They also may be unaware of daycare facilities and other programs that could assist them with their logistical concerns. In some cases, outreach programs may be able to provide the psychological support to help them work out their concerns earlier in the admissions cycle. If daycare and other types of services for the non-traditional student are not offered at the college, such services should be provided.

If, however, the problem of the late applicant is a manifestation of some more deeply rooted dimension of character—laziness, lack of drive or motivation, lack of commitment, or ennui, then the solution becomes more difficult. In some of these situations, if the college community could convince these students of the career benefit of college early in the admissions cycle, then their interest may be piqued and their level of motivation improved. This group also may respond to financial incentives, such as reducing the admission application fee for early applicants. One advisor had this to say about this group of students: "There's not going to be a great deal of motivation for these students because they've let it slip and slide to this point, so they aren't driven yet. And my guess is that a large portion of them won't continue. And it's probably larger than that group that got started two months earlier and was more interested" (Weiss, 1999).

If students are not committed to a college education, then it is going to be difficult to persuade them to comply to the desired admissions calendar. Motivation is only a function of someone else's telling them they had to be there--"They told me I had to come...society said I had to come, my parents said I had to come" (Weiss, 1999). These students are using college as a "stop-gap" measure until they figure out what "they want to be when they grow up." In many cases, this lack of direction characterizes the students who are coming directly from high school rather than non-traditional students (Weiss,

1999).

Another group of students who fall into the category of minimal commitment are the students who pursue an education because of a crisis in their lives. A divorce, loss of job, or pressures from an employer may require that these students seek out additional training or a degree. These students may become committed to the educational process over time, but initially they are only committed to the end-product—whatever that may be. These students are late applicants either because they are resisting the pressures that are forcing them to attend college or because the crisis occurred shortly before the beginning of the term. It seems unlikely that the college community will be able to alter the application date of these students.

Financial implications

According to this research, 19.2% of new freshmen applied four weeks or less before the beginning of the quarter, with 8.2% applying within the last week before the beginning of the term, or after classes began. Any policy concerning late applicants will therefore have financial implications for the college. If the college chooses to set an application deadline that will allow for preparation and planning to accommodate the needs of the new freshmen class, then it may lose the group that applies at the last moment. Those late applicants may choose to postpone their enrollment, choose to attend a college with a more lenient admissions policy, or decide not to attend college at all.

One academic advisor described the dilemma in this way: "...you never know what little gem is out there, and everyone you hold onto is a victory. If you close the door on them this time, you just don't know that they'll ever come back" (Weiss, 1999). Will the students who are marginally motivated or older students who are almost paralyzed with fear about the demands of college make the second attempt if they are told that they

must wait for the next term to begin? Will these students, as some in the college community believe, lose their "momentum" and not proceed with their college goals (Weiss, 1999)?

Conversely, would the cost of losing these students be mitigated by the fact that if they remain they will likely not persist? The college could be advancing an alternative, ethical policy, by only admitting students that it could properly serve given the limitations of time and resources. By admitting a student, the college should be entering into an agreement with that student that the college can provide the necessary resources for them to succeed. To do otherwise, is to set the stage for failure. Obviously, these decisions are difficult, however, research can help to determine the best course of action.

Further Research

Given the results of this research, it can be concluded that student characteristics and student persistence are related to the student's date of application. The relationship between student achievement and the date of application is less clear. The statistical analyses of the variables of student achievement resulted in non-significant findings; however, in evaluating the crosstabulations, certain patterns did appear for students who applied during the last few weeks before the quarter began. This would be an area for further research. It would also be useful to perform this research at a four-year institution without an application deadline and at other two-year access colleges.

Persistence was operationally defined for this research as re-enrolling for the subsequent quarter. Even though first term to second term persistence is an important indicator for community college students, this remains a limited definition. Ideally, students should be tracked to see if they fulfill their goal within the institution. For

students who choose to leave, it would be important to note if they were transferring to another college or leaving the educational arena dissatisfied and unfulfilled. This information was not available for this study but would be an area for further research.

In addition, it would be beneficial to repeat this research with a larger sample. Of the 784 valid cases, 153 students fell within the range of applying four weeks or less before the beginning of the quarter. In some cases, this relatively small number of late applicants resulted in crosstabulation cells with fewer than five cases. The crosstabulation results were therefore used to discern patterns but could not be used to confidently determine statistical significance. Fortunately, most of the crosstabulations were conducted after a higher order statistical procedure had been performed on the data. The benefit of also pursuing a crosstabulation analysis was that the data could be reduced into a small number of categories within the variables. This made the results easier to read and allowed the reviewer to focus on the late applicants as groups of students based on the week they applied.

As universities become more automated, this type of research should become easier. No longer will researchers have to wade through thousands of files to obtain data. All data should be easily retrievable from the student information system. Many schools have not chosen to invest resources to input student data beyond what is absolutely necessary for basic operations; but as retention analysis becomes more important, this information will become essential for enrollment management decisions.

Conclusion

The problem of addressing the needs of the late-admit plagues open-access colleges across the nation. The mission of these colleges is to provide educational

opportunity for students who may not otherwise have access to the benefits of higher education. Reducing the number and scope of the bureaucratic barriers encountered may be desirable, but acknowledging the problems created by eliminating admission deadlines is important.

This research explored the characteristics, academic achievement, and persistence of late applicants. This study investigated a population of students who, by every indication, should be at highest risk for attrition--late applicants. Motivated traditional students have most likely been admitted months before the term begins. Most of the programs that exist in the academy cater to these students (Thon, 1984). If we can better understand the late applicants, we may be able to develop programs to encourage them to start the transition to college sooner and better meet their needs once they do arrive.

Leaders of open-access institutions, particularly those involved in making enrollment policies, should begin a dialogue about admission policies that allow new students to be admitted through the first day of the term and, often times, into the initial few weeks of class. Research is a necessary component of this dialogue. Colleges and university researchers need to determine if late applicants are served by the process and the ethical implications of allowing first-time freshmen to be admitted without the benefit of orientation, at a time when there are few available classes to meet their academic needs. Higher education can be a slave to enrollment numbers, yet the enrollment figures are misleading without also considering students' tenure at the institution. Every student should be afforded the opportunity to succeed.

This research lends insight into the characteristics and behavior of students who apply late to access colleges. In many ways, these students are the ones who are at

highest risk in our educational system. Many of them may be first generation college students, students who did not perform well in high school, or students who cannot afford to make education their top priority. They are looking for a way to join in the economy as productive citizens. They are keenly aware of the cost of education and will evaluate the benefits as they proceed through the labyrinth that they are made to navigate. We should not write them off as an expendable commodity, even though they do not conform to the traditional academic calendar and take care of tasks in, what academic administration deems, a timely manner. They are an asset to higher education and the society. They may carry with them a different perspective, and, by doing so, force us to change our own perspective and reevaluate our policies and procedures for enrollment services.

This study has found that students who apply late have different demographic characteristics, secondary academic histories, and enrollment objectives from students who apply earlier. The profile of the late applicant in this study closely resembles the profile established in the professional literature for students at highest risk for attrition. Accordingly, this study also confirms that students who apply late have a higher rate of attrition than students who apply earlier. With this information, colleges who allow late admission should analyze their policies and determine if the programs, services, and courses available to these late applicants fulfills the college's responsibility to provide all admitted students with the opportunity for success.

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